SECTION 1

CESSNA TRANSCEIVER 500

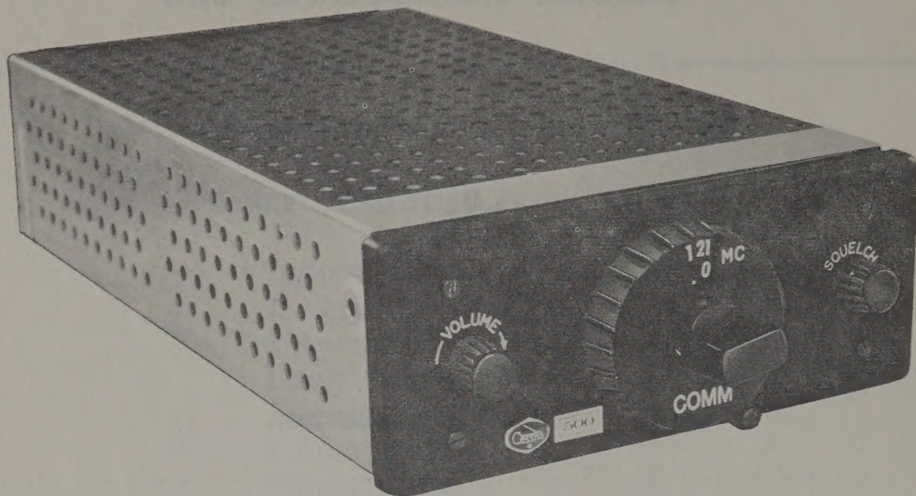
LIST OF REVISED PAGES ISSUED

INSERT LATEST REVISED PAGES. DESTROY SUPERSEDED PAGES.

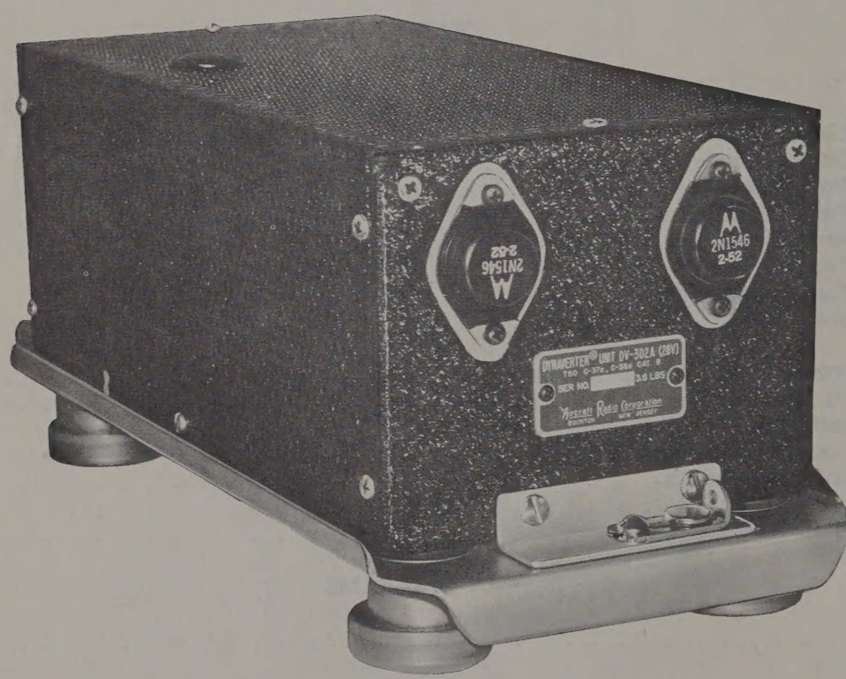
Page	Revision Date
i	1 April 1964
2-23	1 April 1964
2-26	1 April 1964
2-28	1 April 1964
2-30	1 April 1964
2-31	1 April 1964
2-42	1 April 1964
2-65	1 April 1964

CESSNA TRANSCEIVER 500

Contents



28410-1000 RECEIVER
WITH
27591 MOUNTING



28420-0014 DYNAVERTER
28420-0028 DYNAVERTER
WITH
24900 MOUNTING

Figure 1-1. Cessna Transceiver 500

CESSNA TRANSCEIVER 500

Maintenance

INTRODUCTION.

The following contains maintenance data for the Cessna Transceiver 500 Communications Equipment. Included are a list of test equipment and accessories required for maintenance, procedures for replacement of parts, disassembly procedures, lubrication information, equipment performance and trouble analysis information, alignment procedures, and typical voltage, resistance, voltage level, and stage gain measurements. To help locate and identify individual parts, interior views of the units are also included in this section. Complete schematic and wiring diagrams of the units are included in Section IV.

WARNING

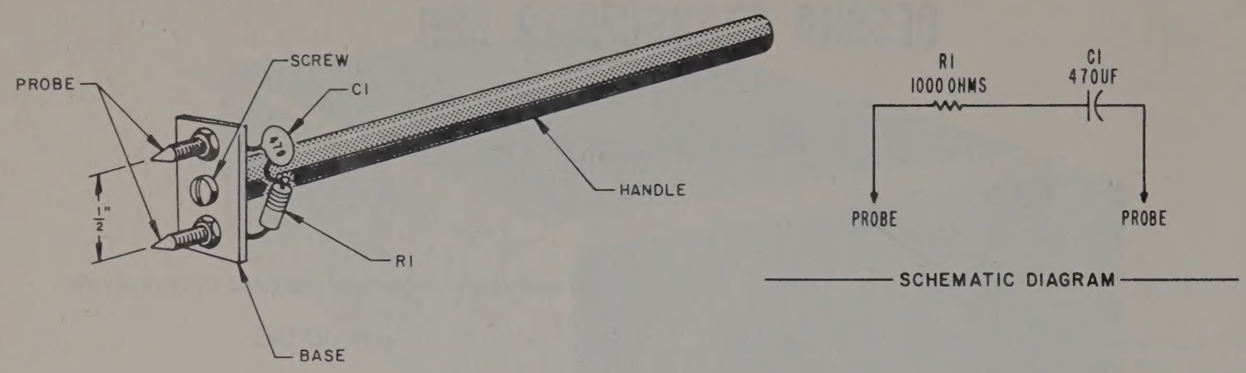
Voltages in this equipment are dangerous and may be fatal if contacted. Observe all safety precautions.

TEST EQUIPMENT AND ACCESSORIES.

Table 1-1 lists the test equipment and accessories required for maintenance of the Cessna Transceiver 500.

TABLE 1-1. TEST EQUIPMENT

Qty	Name	Description	Characteristics
1	Transceiver 500 Test Harness	10182-020 Test Harness	Shown in Figure 1-8.
1	I-F Swamping Tool	10182-018	Shown in Figure 1-3.
1	Alignment Tool	8279 CGT	Used for alignment.
1	Linear Detector	10182-011	Shown in Figure 1-4 for measuring modulation percentage.
1	Adapter	UG-273/U	Shown in Figure 1-8. Connects to oscilloscope.
2	Cable Assembly	10182-012	Shown in Figure 1-8.
1	Audio Ossillator	Model 200AB Hewlett-Packard	Shown in figure 1-8.
1	Oscilloscope	Model 310A TEKTRONIX	Shown in Figure 1-8.
1	R-F Wattmeter	Model 61 Bird Electronics	Shown in Figure 1-8.
1	Signal Generator	Type 211A Boonton, Radio or Model 608D Hewlett-Packard	Shown in Figure 1-8.
1	Signal Generator	Model 65-B	Shown in Figure 1-8, i-f, r-f alignment.
1	Sweep Generator	Model 900A Jerrold Electronics	i-f, r-f alignment.
1	Voltmeter	Model 300D Ballantine	Shown in Figure 1-8.
1	Voltmeter	Model 410B Hewlett-Packard	Shown in Figure 1-8. measurements.
1	Output Power Meter	Type 583A General Radio	Measure audio output.
1	Attenuator	Type 505B Boonton Radio	6 db Pad
1	Headset	At least 500 OHM Impedance	
1	Power Supply	14 or 28 Volt DC Rectifier or Storage Battery	DC Power
1	Microphone		
1	Adapter	UG-201/U	Shown in Figure 1-8. Connects linear detector to RF wattmeter.
1	Adapter	UG-349A/U	Shown in Figure 1-8. Connects to attenuator.



NOTE: BASE AND HANDLE ARE CONSTRUCTED OF NONCONDUCTIVE MATERIAL.

Figure 1-3. i-f Tuning Tool for Bench Test Setup

REPLACEMENT OF ELECTRON TUBES.

The fourteen plug-in electron tubes used in the Receiver-Transmitter are accessible after the unit is removed from its mounting and the top shield screen is removed from the unit. Tube locations are shown in Figure 1-5. If the tubes are removed for testing, replace all tubes testing "good" in the location from which they were removed. Check for normal performance any new tube that is to be installed.

REPLACEMENT OF CRYSTAL DIODES.

Receiver-Transmitter and Dynaverter crystal diode locations are shown in Figures 1-5 and 1-6. Table 1-2 lists the reference designation, type, function, and wiring diagram reference for each diode. If replacement of a crystal diode is required, the new crystal diode must be correctly polarized and its leads routed as nearly as possible like the original installation. When soldering a replacement diode, hold the lead with a pair of pliers between the solder joint and the diode. The pliers form a heat sink which prevents excessive heat from damaging the diode. Do not remove the pliers until the heat from the solder joint has been dissipated.

REPLACEMENT OF TRANSISTORS.

The Dynaverter uses seven transistors which are secured to the chassis by direct-mounting or by a clamp to promote heat dissipation. Locations of the transistors are shown in Figure 1-6. Figures 1-16 and 1-17 illustrate the transistor wiring. To replace a transistor, unsolder the connecting wires and remove the transistor from its mounting. If the

TABLE 1-2. LOCATION OF CRYSTAL DIODES

Ref Desig	Type	Function	Wiring Diagram
		Receiver-Transceiver	
CR102	HD6226	Automatic Noise Limiter	Figure 1-15
CR104	HD6226	Audio Detector	Figure 1-15
CR105	HD6226	Agc Clamp	Figure 1-15
		Dynaverter	
CR301	IN2070	Bridge Rectifier	Figure 1-23
CR302	IN2070	Bridge Rectifier	Figure 1-23
CR303	IN2070	Bridge Rectifier	Figure 1-23
CR304	IN2070	Bridge Rectifier	Figure 1-23
CR305	IN2070	Bias Rectifier	Figure 1-23
CR306	IN1560	Blocking Diode	Figure 1-21

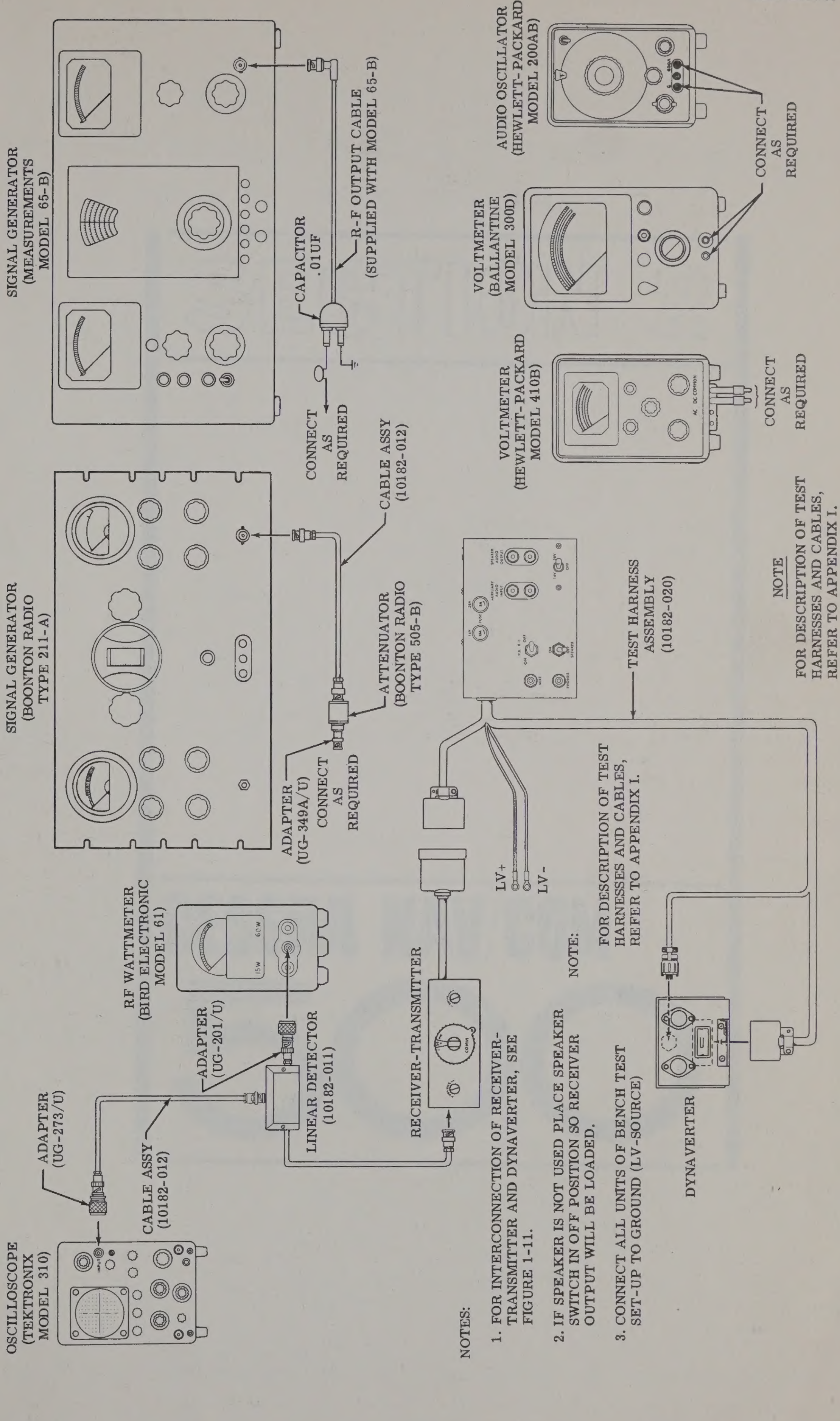


Figure 1-8. Cessna Tranceiver 500 Bench Test Interconnection Diagram

SECTION 2

CESSNA NAV/COM 500

LIST OF REVISED PAGES ISSUED

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Page	Revision Date
i	1 April 1964
1-9	1 April 1964
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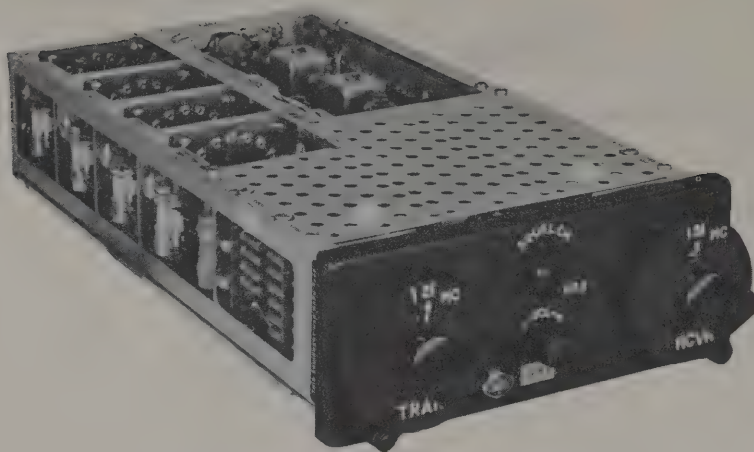
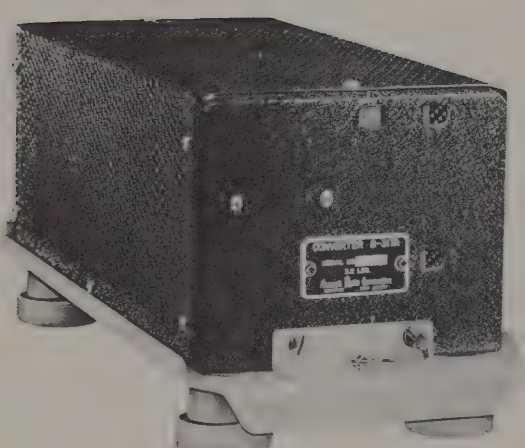
CESSNA NAV/COM 500

Contents

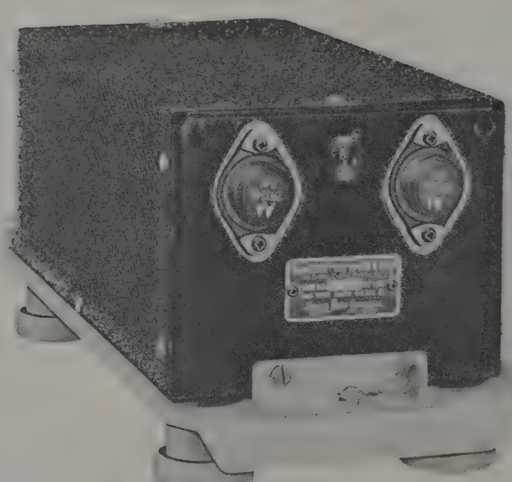


RECEIVER - TRANSMITTER

INDICATOR



CONVERTER WITH MOUNTING



DYNAVERTER WITH MOUNTING

Figure 2-1. Cessna Nav/Com 500 Set, Major Units

CESSNA NAV/COM 500

Maintenance

INTRODUCTION.

This section contains test equipment data; performance checks; trouble analysis information; adjustment and alignment, and removal and replacement procedures; lubrication data; and typical voltage, resistance, and stage gain measurements. Complete schematic and wiring diagrams of the units are included.

WARNING

VOLTAGES IN THIS EQUIPMENT ARE DANGEROUS AND MAY BE FATAL IF CONTACTED. OBSERVE ALL SAFETY PRECAUTIONS.

TEST EQUIPMENT AND ACCESSORIES.

The following Test Equipment lists the equipment and accessories required for maintenance of the Nav/Com 500; equivalent test equipment and accessories may be substituted.

PERFORMANCE CHECKS.

The performance check table outlines the procedures for checking the performance of the Nav/Com. The bench test interconnections are shown in Figure 2-10.

A specific performance check may be made without doing the preceding checks. But in such instances, the preliminary procedures of Steps 1 and 2 must be included.

All signal generator outputs are listed in hard* microvolts. With the Boonton Radio Corporation Type 505-B 6-db Attenuator, the attenuator dial of the signal generator in use reads hard microvolts directly. Without the 6-db attenuator the attenuator dial reading must be doubled to give the correct hard-microvolt reading.
*Hard microvolts are defined as equivalent open-circuit microvolts across a 50-ohm signal source.

TABLE 2-1. TEST EQUIPMENT

Qty	Name	Description	Characteristics
1	I-F Swamping Tool	10182-018	Shown in Figure 2-7.
1	Alignment Tool	8279 CGT	Used for alignment.
1	Linear Detector	10182-011	Shown in Figure 2-9. For measuring modulation percentage.
1	Adapter	UG-273/U	Shown in Figure 2-10.
2	Cable Assembly	10182-012	Shown in Figure 2-10.
1	Cable Assembly	10182-021	Shown in Figure 2-10.
1	Nav/Com 500 Test Harness	10182-022 Test Harness 14 - 28 Volt	Shown in Figure 2-10.
1	Audio Oscillator	Model 200AB Hewlett-Packard	Shown in Figure 2-10.
1	Oscilloscope	Model 310A TEKTRONIX	Shown in Figure 2-10.
1	R-F Wattmeter	Model 61 Bird Electronics	Shown in Figure 2-10.
1	Signal Generator	Type H-14A ARC	Shown in Figure 2-10.
1	Signal Generator	Model 65-B	i-f, r-f alignment.
1	Sweep Generator	Model 900A Jerrold Electronics	i-f, r-f alignment.
1	Voltmeter	Model 300D Ballantine	Shown in Figure 2-10.
1	Voltmeter	Model 410B Hewlett-Packard	Measurements
1	Output Power Meter	Type 583A General Radio	Measure audio output.
1	Attenuator	Type 505B Boonton Radio	Shown in Figure 2-10.
1	Signal Generator	Model 608D Hewlett-Packard	Shown in Figure 2-10.
1	Headset	At Least 500-OHM Impedance.	
1	Power Supply	14 or 28 Volt D-C Rectifier or Storage Battery	DC Power
1	Microphone		
1	Adapter	UG-201/U	Shown in Figure 2-10. Connects linear detector to RF wattmeter.
1	Adapter	UG-349A/U	Shown in Figure 2-10. Connects attenuator to signal generator.
1	Signal Generator	Type 211-A Boonton Radio	Shown in Figure 2-10.

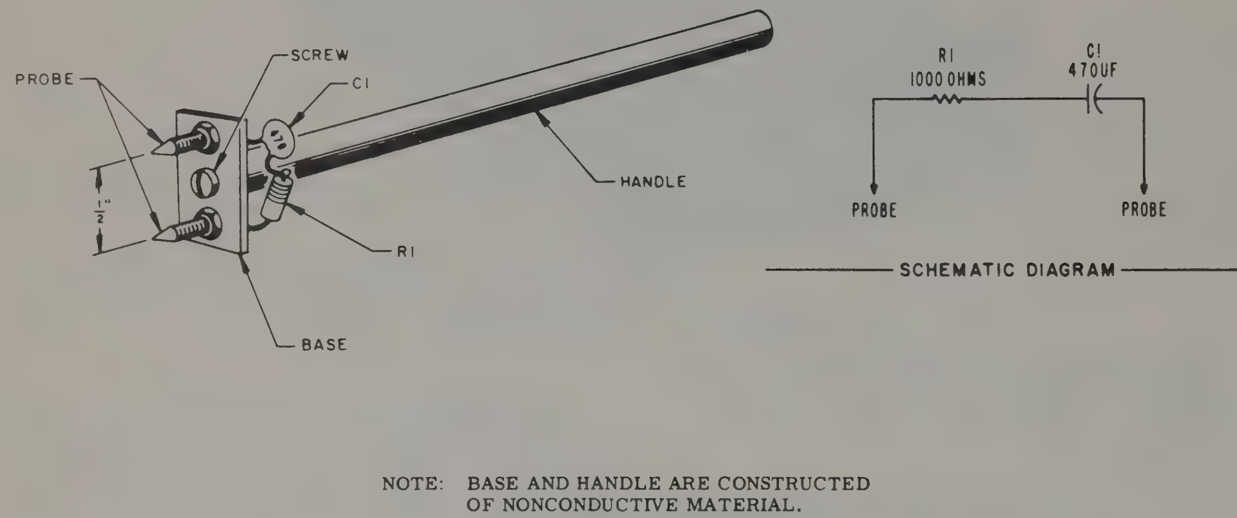


Figure 2-7. I-f Swamping Tool for Bench Testing

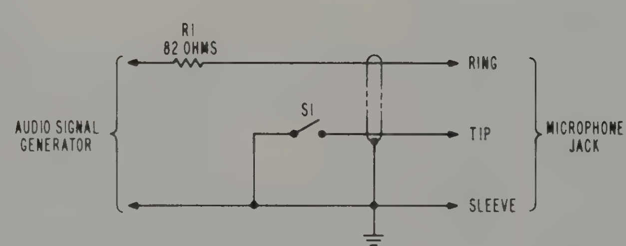
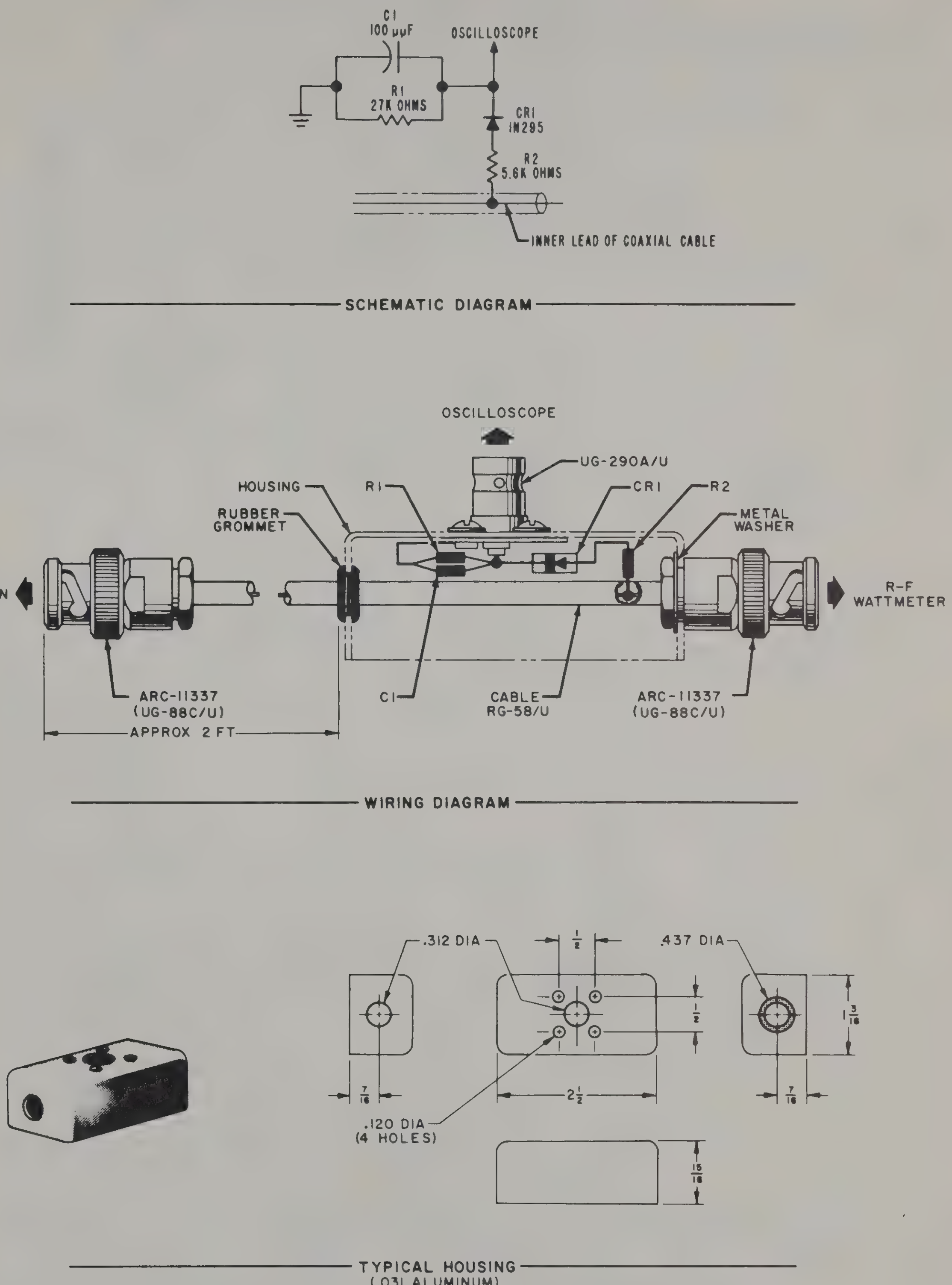


Figure 2-8. Dummy Microphone for Bench Testing



NOTE: DIMENSIONS ARE IN INCHES.

Figure 2-9. Linear Detector for Bench Testing

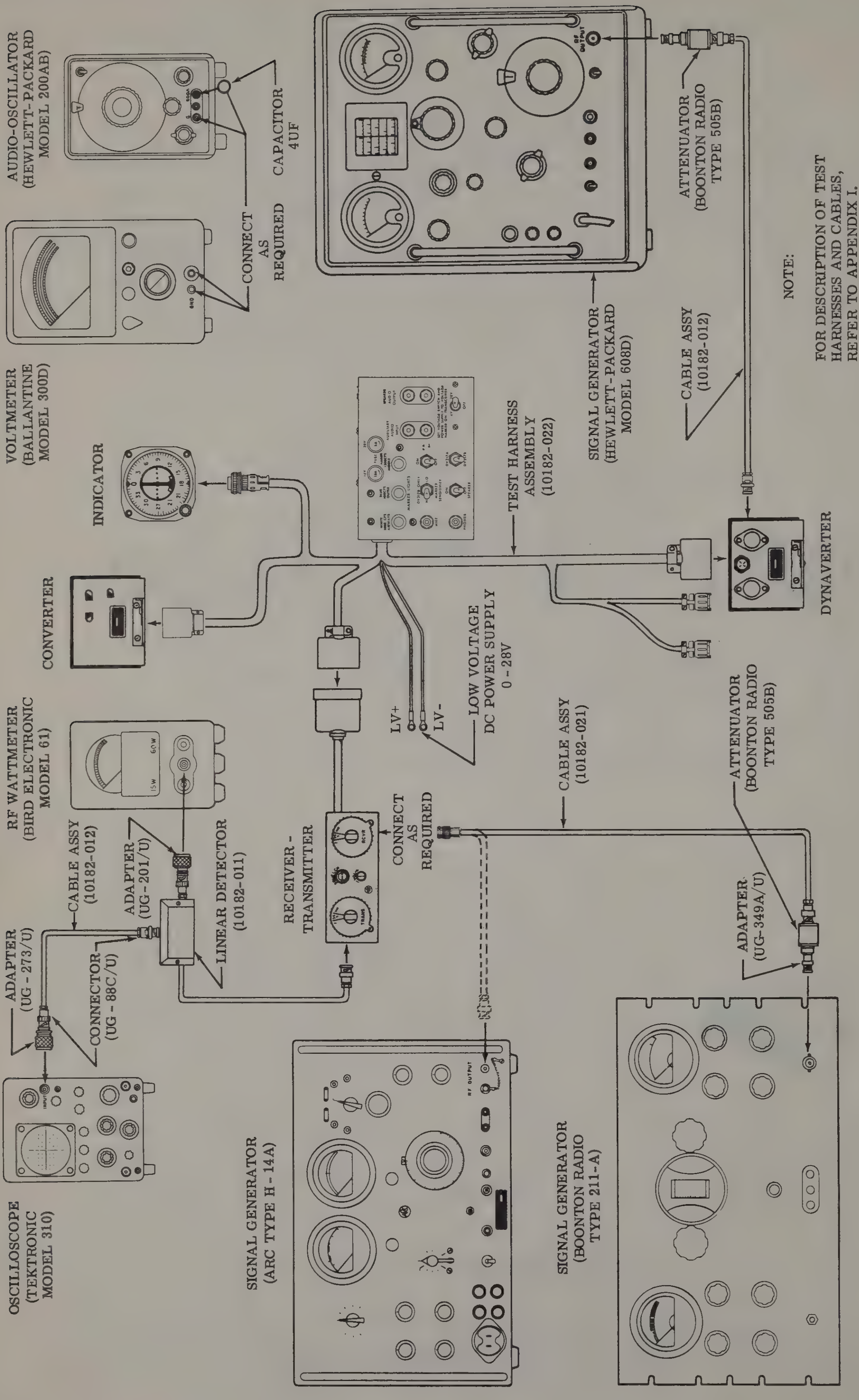


Figure 2 - 10. Cessna Nav/Com 500 Bench Test Interconnection Diagram

TEST EQUIPMENT AND ACCESSORIES - Continued

Qty	Name	Designation or Characteristics
	ACCESSORIES - Continued	
6	Connector	UG-88C/U
2	Connector	DAGE No. 8000-1
AR	Coaxial Cable	RG-58/U
1	Dummy Microphone+	See Figure 2-8
1	I-f Swamping Tool	See Figure 2-7
1	Linear Detector	See Figure 2-9
1	Marker Light Adapter Kit*	27847
1	Microphone+	
1	Speaker	4 ohms
1	Switch*	SPDT
1	Tool (Alignment)	Insulated broach type
1	Tool (Alignment)	Insulated slot type
1	Tuning Wand	Teflon wand with brass and iron tips

*Required if Cable Harness is not available.
+Either a conventional microphone or the dummy microphone shown in Figure 2-8 may be used.

NAV/COM 500 PERFORMANCE CHECKS

Step	Procedure	Normal Indications
	PRELIMINARY PROCEDURE	
1	Interconnect units of Nav/Com and test equipment as shown in Figure 2-10 test equipment shown unconnected will be connected as required.	None.
2	Apply primary voltage. Adjust voltage to 13.75 volts dc (14-volt model) or 27.5 volts dc (28-volt model).	Tube filaments and panel lamps light. Dynaverter whine audible.
	Turn VOL control clockwise to turn equipment on and adjust VOL to desired level. Adjust SQUELCH as required.	
	Allow a 15-minute warm-up period.	
	LOW-VOLTAGE CRYSTAL CHECK	
3	Adjust primary voltage to 11.0 volts dc (14-volt model) or 22.0 volts dc (28-volt model).	As noted.
4	Connect Boonton Type 211-A Signal Generator through Boonton Type 505-B 6-db Attenuator to J101.	None.
5	Set VOL and SQUELCH controls full clockwise. Set RCVR MC to 126.00 mc.	None.
6	Adjust Type 211-A for 126.00-mc output modulated 30%, 1000 cps. Set Type 211-A attenuator dial at 5.0 uv.	1000-cycle tone audible.
7	Set RCVR FRACT MC and tune Type 211-A to each fractional megacycle frequency.	1000-cycle tone audible at each frequency.
8	Set RCVR MC and tune Type 211-A to each megacycle frequency.	1000-cycle tone audible at each frequency.

NAV/COM 500 PERFORMANCE CHECKS - Continued

Step	Procedure	Normal Indications
	RECEIVER SENSITIVITY AND SQUELCH CHECK	
9	Set RCVR MC to 108.00 mc.	None.
10	Connect Boonton Type 211-A signal Generator through the Boonton Type 505-B 6-db Attenuator to J101 of Nav/Com. Adjust Type 211-A for 108.00-mc output modulated 30%, 1000 cps. Set Type 211-A attenuator dial at 2.0 uv. Connect Ballantine Model 300 to speaker output terminals on test box.	None.
11	Carefully adjust Type 211-A output in vicinity of 108.00 mc until dip in passband is noted on Model 300.	As noted.
12	Vary VOL control until Model 300 indicates +14 db (0.5 volt). Switch 1000-cps modulation off and observe drop in db as seen on vtvm.	Db drop should be 6db minimum.
13	Switch modulation on. Turn VOL control maximum clockwise and observe reading on vtvm.	Reading should be greater than 3 volts.
14	Rotate SQUELCH control maximum counterclockwise and observe output on vtvm.	Reading should be 0.3 volt maximum.
	RECEIVER AGC OPERATION	
15	Set RCVR MC to 108.00 mc.	None.
16	Connect Boonton Type 211-A Signal Generator through the Boonton Type 505-B 6-db Attenuator to J101 of Nav/Com. Adjust Type 211-A for 108.00-mc output modulated 30%, 1000 cps. Set Type 211-A attenuator dial at 2.0 uv.	None
17	Carefully adjust Type 211-A output in vicinity of 108.00 mc until dip in passband is noted on Ballantine Model 300 vtvm.	As noted.
18	Increase Type 211-A output to 10 uv.	None.
19	Turn VOL control until Model 300 indicates +14 db (0.5 volt).	None.
20	Increase Type 211-A output to 20,000 uv.	Output level on vtvm should be between 15 and 17 db.
21	Increase Type 211-A output to 2.0 volts.	Output level on vtvm should be between 16 and 19 db.
	CONVERTER VOR OPERATION	
22	Connect RF OUTPUT of ARC Type H-14A Signal Generator to J101 of Nav/Com.	None.
23	Set RCVR MC and RCVR FRACT MC to 114.90 mc. Set H-14A MC crystal switch to B (114.90 mc). Set H-14A MODULATION switch to 30~, ATTENUATOR control to 1000 uv, and OMNI TRACK control to 0°.	Course Indicator OFF/TO-FROM meter should read OFF.
24	Set H-14A MODULATION switch to 9960~.	OFF/TO-FROM meter indicates OFF.

NAV/COM 500 PERFORMANCE CHECKS - Continued

Step	Procedure	Normal Indications
	CONVERTER VOR OPERATION - Continued	
25	Set H-14A MODULATION switch to OMNI and CRS SEL pointer to 0°.	OFF/TO-FROM meter indicates TO. Vertical pointer should be near center.
26	Adjust CRS SEL pointer until vertical pointer is centered.	CRS SEL pointer should be at 0° ±2-1/2°.
27	Set H-14A OMNI TRACK control to 180°, ATTENUATOR control to 100 uv, and rotate CRS SEL knob for a vertical pointer reading of 5 dots to left. Note position of CRS SEL pointer. Rotate CRS SEL knob for a vertical pointer reading of 5 dots to right. Note position of CRS SEL pointer.	OFF/TO-FROM meter indicates FROM. Difference between 5-dot left reading and 5-dot right reading should be 20 ± 1°.
28	Set H-14A OMNI TRACK control to 0° and reduce setting of ATTENUATOR control to 5 uv.	OFF/TO-FROM meter indicates TO.
29	Reduce setting of ATTENUATOR to minimum.	OFF/TO-FROM meter indicates OFF.
	LOCALIZER CHECK	
30	Set RCVR MC and RCVR FRACT MC to 110.90 mc. Set H-14A MC crystal switch to A (110.90 mc). Set H-14A ATTENUATOR control to 1000 uv.	None.
31	Set H-14A MODULATION switch to AMP LOC ⦶ (pointer center).	Indicator vertical pointer centers. OFF/TO-FROM meter reads TO. (If a 1-ma, 330-ohm, meter is used to replace the flag movement, its reading should be greater than 0.155 ma for a "pointer center" position.
32	Set H-14A MODULATION switch to AMP LOC ⊘ (pointer left).	Vertical pointer swings left to outer edge of blue sector. OFF/TO-FROM meter indicates TO. (This condition corresponds to 90 ua in meter movement. A 1000-ohm, 200-0-200 microammeter may be substituted for the indicator if desired.)
33	Set H-14A MODULATION switch to AMP LOC ⦸ (pointer right).	Vertical pointer swings right to outer edge of yellow sector within about one pointer width. (Meter currents should be 90 ua ± 5 ua.) OFF/TO-FROM meter reads TO.
34	Set H-14A MODULATION switch to 90∼.	OFF/TO-FROM meter indicates OFF.
35	Set H-14A MODULATION switch to 9960∼.	OFF/TO-FROM meter indicates OFF.
36	Set H-14A OMNI TRACK control to 0° and reduce setting of ATTENUATOR control to 5 uv.	OFF/TO-FROM meter indicates TO.
37	Reduce setting of ATTENUATOR to minimum.	OFF/TO-FROM meter indicates OFF.

NAV/COM 500 PERFORMANCE CHECKS - Continued

Step	Procedure	Normal Indications
	TRANSMITTER LOW-VOLTAGE OUTPUT CHECK	
	CAUTION Do not key the transmitter when transmitter megacycle channel selector switch is set to either of the two red-dot positions between 118 and 135 mc.	
38	Set TRANS MC and TRANS FRACT MC to 135.95 mc. Key transmitter and read unmodulated power output on Bird Electronic Model 61 RF Wattmeter.	R-f wattmeter should indicate the output.
39	Repeat step 38 for all settings of the TRANS MC switch, and then for all settings of the TRANS FRACT MC switch.	R-f wattmeter should indicate the output for each setting.
40	Increase primary voltage input to rated level: 13.75 volts dc (14-volt model) or 27.5 volts dc (28-volt model).	None.
41	Repeat Step 38 for all settings of the TRANS MC switch, and then for all settings of the TRANS FRACT MC switch.	Power output should be 4.5 watts minimum for each setting.
	MODULATOR PERFORMANCE AND CLIPPING LEVEL	
42	Adjust VERT POSITION and VERT AMP controls of Tektronix Model 310 Oscilloscope until horizontal trace is at middle of screen when transmitter is keyed and at bottom of screen when transmitter is not keyed. Note relative position of each condition on scope face.	None.
43	Inject 1000-cps, 1-volt signal from Hewlett-Packard Model 200AB Audio Oscillator into dummy microphone circuit. Key transmitter.	Carrier is modulated at greater than 85 per cent.
44	Increase output of Model 200AB to 2 volts.	Carrier is modulated at less than 100 per cent.
	MARKER BEACON RECEIVER OPERATION	
45	Using crystal calibrator of Hewlett-Packard Model 608D Signal Generator, tune Model 608D to 75 mc. Connect Hewlett-Packard Model 200AB Audio Oscillator to EXT MOD connector of Model 608D. Adjust Model 200AB for 95% modulation at 400 cps.	None.
46	Connect Ballantine Model 300 vtvm between blue light test jack and common test jack. Set MKR control fully clockwise. If DV-317-B Dynaverter is used place test box Hi-Lo sensitivity switch in Hi position.	None.
47	Increase r-f output of Model 608D until 3 volts is measured on Model 300.	Blue lamp should light. R-f output should be from 2500 uv to 3500 uv.
48	Increase output of Model 608D to 30,000 uv.	Vtvm should indicate from 1.2 to 1.6 volts.
49	Vary output of Model 608D between 3000 and 100,000 uv.	Blue lamp only should light.
50	Repeat Steps 45 through 49 except connect Model 300 between amber light test jack and common test jack, and adjust modulation to 1300 cps.	As noted in Steps 45 through 49, except amber lamp is affected.

NAV/COM 500 PERFORMANCE CHECKS - Continued

Step	Procedure	Normal Indications
	MARKER BEACON RECEIVER OPERATION - Continued	
51	Repeat Steps 45 through 49, except connect Model 300 between white light test jack and common test jack, and adjust modulation to 3000 cps.	As noted in Steps 45 through 49, except white light is affected.

5-4. TROUBLE ANALYSIS.

General. Trouble-shooting requires a systematic method of localizing the trouble, first to the unit in which the malfunction exists, then to a particular stage or to a functionally related group of stages, and finally to the defective part or parts. Trouble-shooting based on a normal operating procedure will often help to determine which unit is at fault. An effective state-by-stage test can then be made by signal tracing to isolate the faulty stage; sensitivity testing can also help to identify the stage. When the trouble has been traced to a particular stage, the faulty part or group of parts may be isolated and identified by a trouble-shooting procedure which may include tube testing; voltage, resistance, and stage gain measurements; and finally, repair or replacement of the defective part.

Trouble-Shooting Chart. The trouble-shooting chart lists the symptoms of some possible troubles, their probable causes, and the analysis procedures that may be used to verify each probable cause. To assist in localizing trouble, reference should be made to the circuit theory discussion in "Principles of Operation", and the schematic "Diagrams" section.

NAV/COM 500 TROUBLE-SHOOTING CHART

Symptom	Probable Cause	Analysis Procedure
	RECEIVER CIRCUITS	
No audio output from phones or loudspeaker; navigation output normal.	Audio detector CR105.	Check forward and back resistance of diode. Forward resistance should be less than 1000 ohms. Back resistance should be at least 10,000 times forward resistance.
	Defective part in audio output circuit.	Touch grid of V109A with blade of screwdriver. If no sound is heard from loudspeaker, check ground path through R146 and arm of marker volume control R154B. Check audio output transformer T310 for open or shorted winding. Make voltage and resistance measurements of audio stages.
	First audio V110A or squelch control V110B.	Check for audio at arm of VOL control R158, If no sound is heard from loudspeaker, check R157 and C166. If C166 is shorted or leaky, entire squelch system will be upset. Make voltage and resistance measurements of V110B and associated parts.
No audio output from loudspeaker; phone and navigation output normal.	Defective part in Dynaverter audio amplifier circuit.	Check continuity of T301 primary winding (pins 1 to 2). Make voltage measurements of Q304, Q305, Q306, and Q307. Make continuity measurements of associated parts.
Audio weak or distorted, or both. Navigation output normal.	Noise limiting diode CR102.	Check forward and back resistance of diode. Forward resistance should be less than 1000 ohms. Back resistance should be at least 10,000 times forward resistance.
	Noise limiting capacitor C171 or associated parts.	Check C171 and associated biasing network for shorts and open resistors. Check operation of VOL control R158.

NAV/COM 500 TROUBLE-SHOOTING CHART - Continued

Symptom	Probable Cause	Analysis Procedure
RECEIVER CIRCUITS - Continued		
Audio weak or distorted, or both. Navigation output normal. (Cont)	Q304 or Q305, in Dynaverter, shorted.	Make voltage measurements of Q304 and Q305.
Audio output normal. No navigation output.	Alignment of S101C.	Check switch and related parts for proper alignment.
	Navigation cathode follower V109B or associated parts.	Make voltage and resistance measurements of. V109B. Check continuity of associated parts.
	VOR/localizer relay K401, in converter.	Check continuity of relay solenoid and contacts.
Low sensitivity.	I-f amplifier stage.	Make voltage resistance, and stage gain measurements of V104, V106, and V107. Make continuity measurements of interstage coupling transformers T102, T103, T104, T105, and T106. Note When an interstage transformer is suspected of being faulty, observe fall-off in output as transformer is detuned slightly. If the fall-off is not well defined, check associated winding and resonating capacitor. When detuning, note that 2-mc tuning is much sharper than that at 455 kc; also that bottom slug of T106 normally tunes very broadly.
	Converter V105 or associated parts.	Make stage gain measurements of V104 and V105. At pin 7 of V105, if 455-kc sensitivity is normal but 2-mc sensitivity poor, check Y140 for proper operation. If C133 (screen bypass for V105) opens, symptoms will be similar.
Receiver and transmitter inoperative on all channels.	Dynaverter power supply.	With transmitter unkeyed, check for 280 volts dc at pin 10 of J301. If voltage is not present, make voltage measurements of Q302, Q303, and associated parts.
	Fractional megacycle oscillator V108B, or associated parts.	Make voltage and resistance measurements of V108B. Check mechanical parts associated with fractional megacycle crystal board and wiper.
Extreme variations in sensitivity as receiver is switched through its fractional positions.	Triple-tuned filter T101 or associated parts.	Substitute new 5654 tube for V102. Carefully check C159 for defects. If both V102 and C159 are good, replace T101 (28713). Do not attempt to realign T101.
The sensitivity varies across band; very low at one end only.	Megacycle oscillator V108A or associated parts.	Make voltage, resistance, and stage gain measurements of V108A.
	Alignment of C150.	Check alignment of C150.
Weak signal sensitivity is normal, but receiver blocks on high-level signals.	Defective part in avc circuit.	Check avc filter C172 and detector filter C173 for leaks or shorts. Check forward and back resistance of avc clamp CR104. Forward resistance should be less than 1000 ohms. Back resistance should be at least 10,000 times front resistance.

Step 3. Adjust C215 or L206 until a reading is noted on voltmeter. Adjust C205 or L202 until a reading is noted on wattmeter.

Step 4. Tune transmitter to 135.50 mc. Adjust L206 for a peak on the voltmeter and L202 for a peak on the wattmeter. Tune to 118.50 mc. Adjust C215 for a peak on the voltmeter and C205 for a peak on the wattmeter. Continue adjusting L206 and L202 at 135.50 mc and C205 and C215 at 118.50 mc until there is no further peaking required at either alignment position. Typical vtvm readings should be between -50 and -70 volts at either frequency.

Final Alignment. To complete the alignment of the transmitter, peak all stages as follows:

Step 1. Remove shorting wire previously installed between wiper and normally open contact of K101. Set modulated-B+ on-off switch on.

Step 2. Connect d-c probe of Hewlett-Packard Model 410B voltmeter to TP7. Set voltmeter to read -100 volts full scale. Tune transmitter to 118.50 mc. Connect Bird Electronic Model 61 Wattmeter to transmitter output jack J201. Key the transmitter.

Step 3. Adjust C231, C225, and C215 for a peak on the voltmeter. Adjust C205 for a peak on the wattmeter. Tune transmitter to 135.50 mc. Adjust L213, L210, and L206 for a peak on the voltmeter. Adjust L202 for a peak on the wattmeter.

Step 4. Check the power output at 118.00 mc and 135.00 mc. Check the output balance between the .0-mc and the .95-mc positions. If output is not balanced at these end positions, readjust the alignment elements of the driver and power amplifier.

Microphone Amplifier and Modulator.

Step 1. Set modulated-B+ on-off switch on. Key the transmitter.

Step 2. Connect Hewlett-Packard Model 200AB Audio Oscillator into phantom microphone. Adjust audio oscillator output for 1 volt at 1000 cps.

Step 3. Set clipping adjust potentiometer R313, shown in Figure 2-12, fully counterclockwise.

Step 4. Adjust R307, shown in Figure 2-12, so that between 85 and 90 per cent modulation is visible on the Tektronix Model 310 Oscilloscope. Tighten the locknut on R307.

Step 5. Increase output of audio oscillator to 2 volts at 1000 cps. Adjust R313 to prevent modulation from exceeding 100 per cent. Tighten locknut on R313.

Sidetone Adjustment. With the Nav/Com installed in the aircraft and interconnected as shown in Figure 2-15 key the transmitter and adjust sidetone potentiometer R317, shown in Figure 2-12, as desired. Tighten locknut to retain the setting.

RECEIVER ALIGNMENT AND ADJUSTMENT PROCEDURES.

General. The following paragraphs describe adjustment and alignment of the receiver circuits in the Receiver-Transmitter. Except for adjustment of the fractional and whole megacycle switches, the procedures are arranged in the order they should be performed if complete alignment is necessary, though any one of the procedures may be performed individually provided the preliminary procedure is included. In addition to the usual reasons for alignment, alignment may be required as a result of a part replacement. Although only the circuit affected need be aligned, for optimum performance the alignment of related circuits should be checked.

In general the receiver i-f circuits are purposely over-coupled so that a dip in the center of the passband is noticeable. All alignment procedures must be made using this dip as the reference.

For all alignment procedures an audio output load of 300 ohms (non-inductive) must be connected across the phone output and 4 ohms (non-inductive) across the speaker output. Parallel loads must not be connected across either output during audio measurements.

All signal generator outputs are listed in hard* microvolts. With the Boonton Radio Type 505-B 6-db Attenuator, the attenuator dial of the signal generator in use reads hard microvolts directly. Without the 6-db attenuator the attenuator dial reading must be doubled to give the correct hard-microvolt reading.

Receiver Fractional Megacycle Switch. If the Nav/Com has been disassembled, adjust the RCVR FRACT MC switch and the receiver VOR/localizer switch during reassembly as follows:

Step 1. Center rotor contacts of S101B and S101C, and S102B on any of the printed stator contacts. For convenience, any contacts on the top of the switches may be used as long as the contacts on the two switches are mechanically in phase.

Step 2. Mesh idler gear in place.

Step 3. As shown in figure 2-11, rotate idler gear until the rotor contact of S102B is centered on the printed stator contact of the 22.224-mc crystal. Tighten the two setscrews in the gear of the receiver VOR/localizer switches, S101B and S101C.

Step 4. Rotate RCVR FRACT MC knob to center .4 mc in the lower portion of window, then tighten the two setscrews in the knob.

Receiver Megacycle Switch. If the Nav/Com has been disassembled, adjust the RCVR MC switch and gang capacitor during reassembly as follows:

*Hard microvolts are defined as equivalent open-circuit microvolts across a 50 ohm signal source.

Step 1. Loosen setscrews in RCVR MC shaft pinion gear. Position stop on capacitor gear against upper stop on capacitor frame. Loosen capacitor gear setscrews and adjust the capacitor rotors until they are fully meshed. Tighten setscrews in capacitor gear.

Step 2. Position stop on the capacitor gear assembly 0.030 ± .003 inch away from upper stop on capacitor frame (see Figure 2-11), then tighten the two setscrews in the pinion gear. This will bring the capacitor slightly out of full mesh.

Step 3. Carefully center the rotor contact on the printed stator contact of the 88.176-mc crystal on S101A; then tighten the two setscrews in the hub.

Step 4. Rotate RCVR MC knob to center 08 in upper portion of window; then tighten the two setscrews in the hub.

Step 5. Rotate RCVR MC knob to center 11 in upper portion of window; then position cam on gang capacitor to just close Micro switch. Tighten two setscrews to secure the cam to the capacitor shaft. When correctly adjusted, Micro switch should remain closed from 08- to 11-mc positions when cam is rotated from either direction. If necessary, adjust Micro switch by loosening mounting screws.

Preliminary Procedure.

Step 1. Interconnect Nav/Com and test equipment as shown in Figure 2-10.

Step 2. Apply rated primary power Nav/Com (13.75 volts dc for 14-volt units and 27.5 volts dc for 28-volt units). Turn test equipment on. Allow at least a 15-minute warm-up period.

455-kc I-f Alignment.

Step 1. Connect d-c probe of Hewlett-Packard Model 410B voltmeter to TP3. Set the voltmeter to read -10 volts full scale.

Step 2. Connect Measurement model 65-B signal generator to the grid (pin 1) of V107. Set signal generator for an output of 400K uv at 460 kc.

Step 3. Place the i-f swamping tool shown in Figure 2-7 across the secondary terminals of T106. Tune the primary (top slug) for maximum reading on the voltmeter.

NOTE

The primary terminals of i-f transformers T104, T105, and T106 are the two eyelets immediately to the rear of the i-f slug holes. The secondary terminals of the transformers are the two eyelets on the front panel side of the slug holes.

Step 4. Set signal generator output to 1 volt and swamp the primary terminals of T106. Tune secondary (bottom slug) for maximum reading on the voltmeter.

NOTE

The bottom slug will tune very broadly, and careful observation may be necessary to identify the peak.

Step 5. Set signal generator for an output of 400K uv at 455 kc. Peak the top slug of T106 without swamping.

Step 6. Set the i-f gain control, R129, maximum clockwise. Repeat Steps 2 and 3, connecting the signal generator to the grid (pin 1) of V106 and tuning T105.

Step 7. Connect the signal generator to the grid (pin 7) of V105. Set signal generator for an output of 400K uv at 455 kc. Swamp the secondard terminals of T104 and peak the primary (top slug). Swamp the primary terminals and peak the secondary.

Step 8. Set signal generator output to 3K uv and adjust R129 to produce -5 volts output on voltmeter.

2.0-mc I-f Alignment.

Step 1. Connect d-c probe of Hewlett-Packard Model 410B voltmeter to TP3. Set the voltmeter to read -10 volts full scale.

Step 2. Connect measurements model 65-B signal generator to the grid (pin 1) of V104. Set signal generator for an output of 400K uv at 2.0 mc.

Step 3. Place the i-f swamping tool shown in Figure 2-7 across the secondary terminals of T103. Tune the primary (top slug) for maximum reading on the voltmeter; then, detune the primary terminals and tune the secondary.

NOTE

The primary terminals of i-f transformers T102 and T103 are the two eyelets immediately on the front panel side of the slug holes. The secondary terminals of the transformers are the two eyelets to the rear of the slug holes.

Step 4. Connect signal generator to grid (pin 2) of V103A. Repeat Step 3 substituting T102 tor T103.

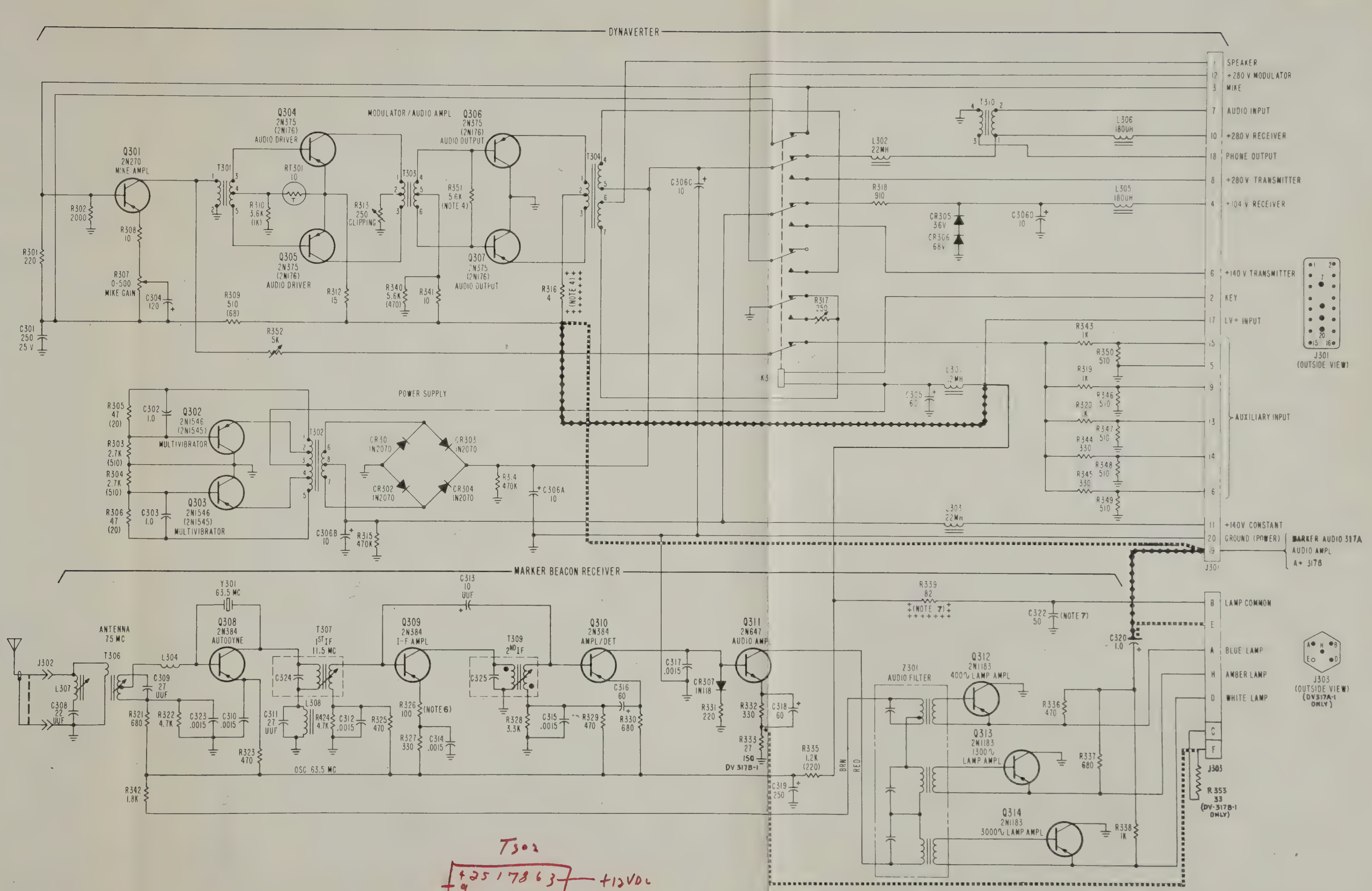
Fractional Megacycle Oscillator Check. The fractional oscillator is normally aligned as part of the transmitter. Any changing of the fractional oscillator tuning during receiver alignment will require a recheck of transmitter operation. The check is included, here, and should be performed only as part of a complete realignment of the receiver.

Step 1. Connect a-c probe of a Hewlett-Packard Model 410B voltmeter to the grid (pin 2) of V103A. Set the voltmeter to read 3 volts ac full scale.

Step 2. Set RCVR FRACT MC knob to each fractional megacycle position. Output as noted on

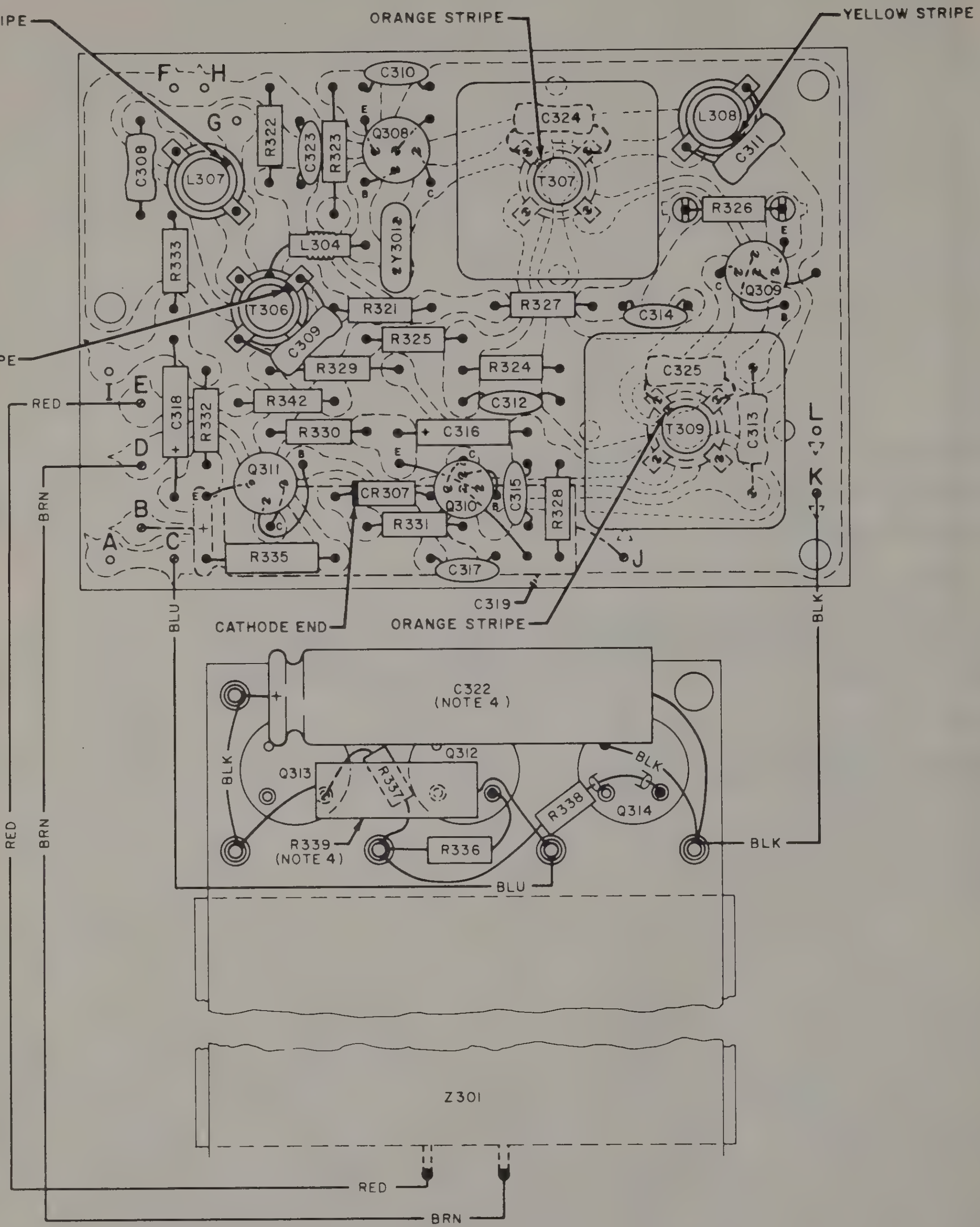
NOTES:

1. RESISTOR VALUES ARE IN OHMS: MULTIPLIER K = 1, 000.
2. CAPACITOR VALUES ARE IN MICROFARADS (μF) UNLESS OTHERWISE NOTED.
3. RELAY SHOWN UNENERGIZED.
4. WIRE MARKED +++ USED ON 14-VOLT MODELS ONLY. RESISTOR R316 AND R351 USED ONLY ON 28-VOLT UNITS.
5. PART VALUES AND TYPE NUMBERS IN PARENTHESES ARE USED ON 14-VOLT MODELS ONLY.
6. VALUE OF R326 SELECTED AND INSTALLED DURING FINAL ADJUSTMENT, VALUE APPROXIMATELY 100 OHMS.
7. C322 AND R339 USED ONLY ON 28-VOLT UNITS.
8. WIRES MARKED ●●●● USED ON DV-317A-1 ONLY.
   WIRES MARKED ▪▪▪▪▪ USED ON DV-317B-1 ONLY.



T302
425178 63 — +12VDc
9
10

Figure 2-22. Dynaverter, Schematic Diagram



NOTES:

1. FOR SCHEMATIC DIAGRAM SEE FIGURE 2-22.
2. WIRES MARKED WITH COLOR NOTE ARE NO. 24 AWG SINGLE CONDUCTOR SOLID COPPER, TEFLON INSULATED.
3. TRANSPARENT TEFLON TUBING INSTALLED OVER ALL TRANSISTOR LEADS.
4. C322 AND R339 USED ONLY ON 28-VOLT UNITS. JUMPER WIRE CONNECTED BETWEEN TERMINALS OCCUPIED BY R339 ON 14-VOLT UNITS.

Figure 2-23. Dynaverter Marker Beacon Receiver, Wiring Diagram

SECTION 3

CESSNA NAV/OMNI 500

LIST OF REVISED PAGES ISSUED

INSERT LATEST REVISED PAGES. DESTROY SUPERSEDED PAGES.

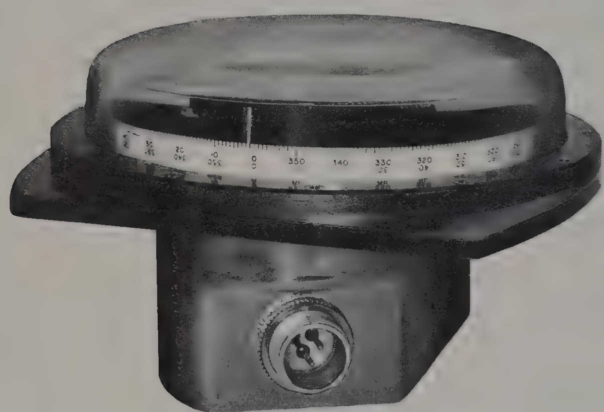
Page	Revision Date
i	1 April 1964
4-15	1 April 1964
4-16	1 April 1964
4-17	1 April 1964
4-18	1 April 1964
4-19	1 April 1964
4-20/4-22	1 April 1964
4-23/4-24	1 April 1964
4-25/4-26	1 April 1964
4-27	1 April 1964
4-28	1 April 1964
4-29	1 April 1964
4-37	1 April 1964

CESSNA NAV/OMNI 500

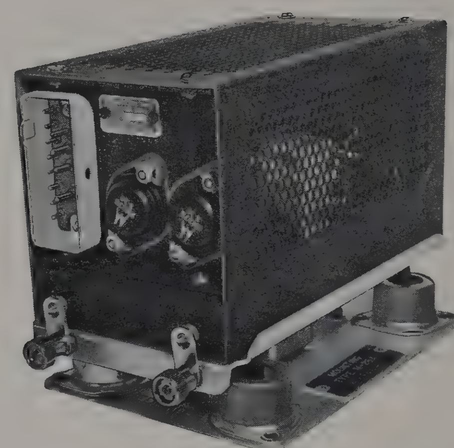
Contents

TEST SET OK

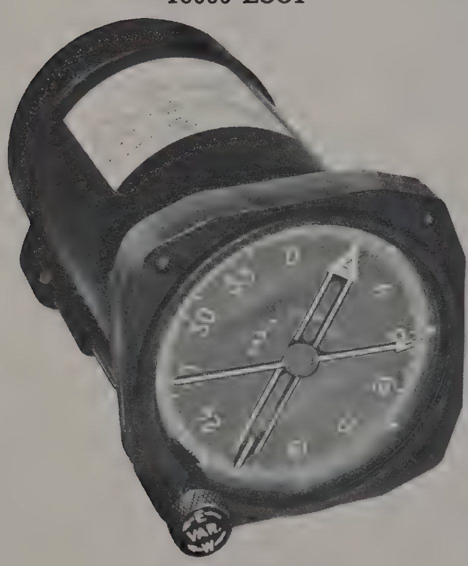
25400-1000 RECEIVER
WITH
27591 MOUNTING



18000 LOOP



26960-0014 DYNAVERTER
26960-0028 DYNAVERTER
WITH
21650 MOUNTING



27470 INDICATOR

27500 INDICATOR

Figure 4-1. Cessna ADF 500, Major Units

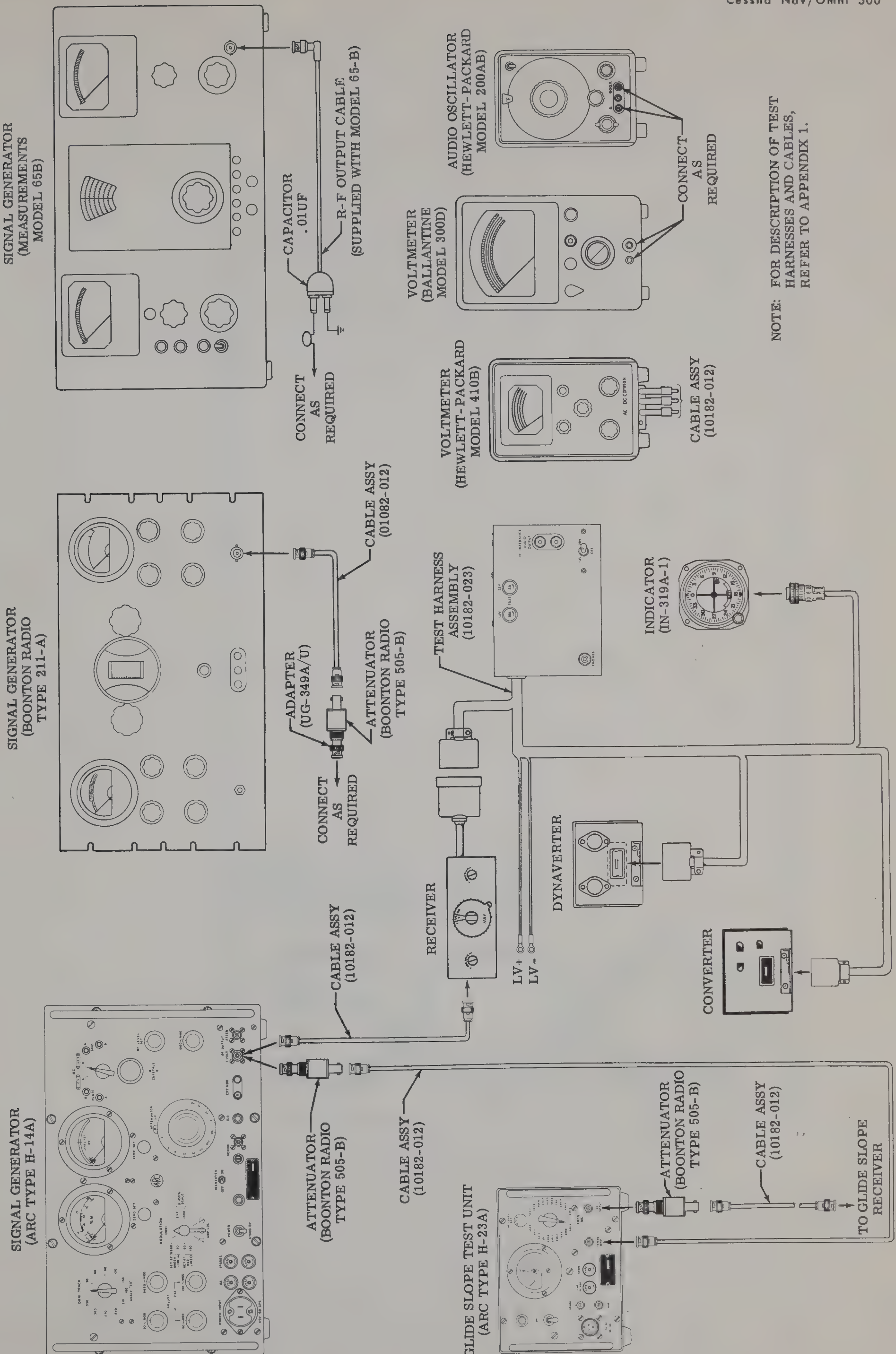


Figure 3-19. Cessna Nav/Omni 500 Bench Test Interconnection Diagram

SECTION 4

CESSNA ADF 500

LIST OF REVISED PAGES ISSUED

INSERT LATEST REVISED PAGES. DESTROY SUPERSEDED PAGES.

Page	Revision Date
i	1 April 1964

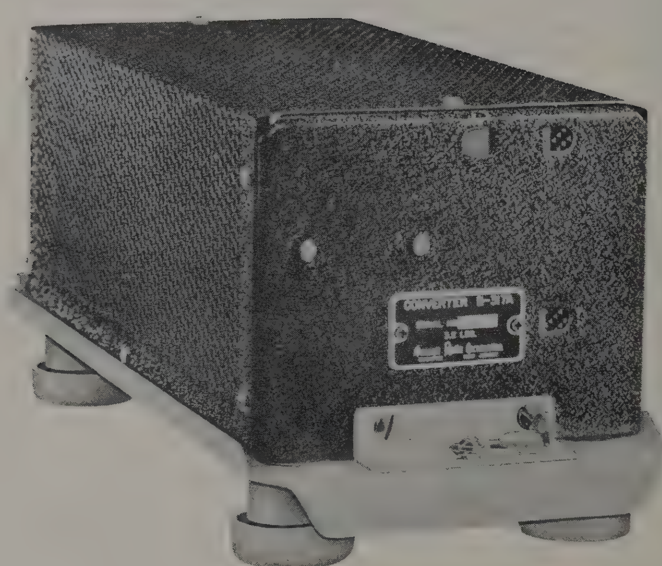
CESSNA ADF 500

Contents

RECEIVER WITH MOUNTING

DYNAVERTER WITH MOUNTING

INDICATOR



CONVERTER WITH MOUNTING

Figure 3-1. Cessna NAV/OMNI 500 VHF Navigation Set, Major Units

CESSNA ADF 500

Maintenance

INTRODUCTION.

This section contains maintenance information for the Cessna ADF 500. Included is a list of test equipment required for maintenance, system performance tests, alignment and adjustment information, and individual maintenance procedures for each of the major units. Schematic and wiring diagrams for the components are included in this section.

WARNING

Voltages in the units of the ADF 500 are dangerous and may be fatal if contacted, observe all safety precautions.

TEST EQUIPMENT.

Table 4-2 lists the test equipment required for the maintenance of the ADF 500; equivalent test equipment may be substituted. Cessna ADF 500 Test Harness part number 10182-025 may be used for a convenient bench test hookup. A r-f field simulator 19780 and loop cable coupler 19760 or a calibrated screen room is required.

If a calibrated screen* room is used, provision must be made for the sense antenna input to the receiver. For this purpose, an r-f capacitive line divider must be connected between the signal generator, which directly energizes the screen room radiating wire, and the sense antenna cable of the ADF 500. This line divider must have an attenuation of 4:1 for 1/4-meter effective height times the screen room field attenuation factor** and in addition, must have an output capacitance of 50 $\mu\mu$f. An r-f line divider for a screen room and a table listing the capacitive values for several room factors are shown in figure 4-10. The addition of a 50 $\mu\mu$f dummy antenna capacitor and a DPDT switch as a DUMMY-FIELD selector switch provides a convenient means of selecting either the microvolts or microvolts-per-meter field strength signal input for the receiver.

*The construction and calibration of a suitable screen room is described in RTCA Paper 83-56/DO-70, RTCA Secretariat, 16 and Constitutional Avenue N.W., Washington, 25, D.C.

**Screen Room Attenuation Factor = Signal Generator Output (μv) / Field Strength (μv/meter)

TABLE 4-2. TEST EQUIPMENT

Qty	Name	Description	Characteristics
1	ADF 500 Test Harness	10182-025 Test Harness	Shown in Figure 4-11.
1	Indicator Test Harness	10182-019 Test Harness	Shown in Figure 4-11. (Used for testing IN-13A-1 and IN-12-1 indicators)
1	Loop Antenna Cable	17985 Loop Cable Assy	Connects Loop to Receiver.
1	Sense Antenna Cable	17984 Sense Cable Assy	Shown in Figure 4-11.
1	R-F Field Simulator	19780 R-F Field Simulator	Used when screen room is not available
1	Loop Cable Coupler	29660 Loop Cable Coupler	Used when screen room is not available
1	R-F Test Cable Assy	10182-012 Cable Assembly	Shown in Figure 4-11.
1	Dummy Antenna	——	50 $\mu\mu$f capacitor
1	Loop Cable Coupler	19760	Shown in Figure 4-12.
1	Audio Oscillator	200AB Hewlett-Packard	Shown in Figure 4-12.
1	Signal Generator	65B	Shown in Figure 4-12.
1	Voltmeter	300 Ballantine	Shown in Figure 4-12.
1	Headset	At Least 500-OHM Impedance	Connects to Test Harness
1	Power Supply	14 or 28 Volt D-C Rectifier or Storage Battery	Connects to Test Harness
1	Oscilloscope	Model 310A TEKTRONIX	Used for MeasuringLoop Modulation
1	Voltmeter	Model 410B Hewlett-Packard	Used for Measurements
1	Output Power Meter	Type 583A General Radio	Used for Measuring Power Output

SYSTEM PERFORMANCE TESTS.

General.

Table 4-3 outlines the procedures for checking the performance of the ADF 500. The individual tests may be performed separately if desired. However, if the receiver has been realigned, all tests must be performed. The test equipment required for performing the tests is listed in Table 4-2. Figure 4-11 illustrates the bench test setup using the Cessna test harness.

Test Conditions.

Unless otherwise specified, the following test conditions apply when using bench test setup.

Signal Source.

The output of the signal generator is connected either to the SIG GEN receptacle on the RF Field Simulator or to the input receptacle of the r-f line divider. When the DUMMY-FIELD switch of the RF Field Simulator or r-f line divider is in the DUMMY position, the signal generator is fed through a 50 $\mu\mu$f capacitor to the 100 $\mu\mu$f sense antenna cable. In the FIELD position, the signal generator is coupled to the sense antenna cable to provide 1/4-meter antenna effective height and also to feed a wire radiator which supplies the signal source for the loop. The FIELD position of the RF Field Simulator also provides direct conversion of signal generator microvolts to microvolts/meter field strength, but the mircovolt output of the signal generator must be divided by the "room factor" to obtain the microvolts/meter field strength at the antenna input to the receiver; however, in the DUMMY position the microvolt output of the signal generator is used directly.

S+N/N Ratio.

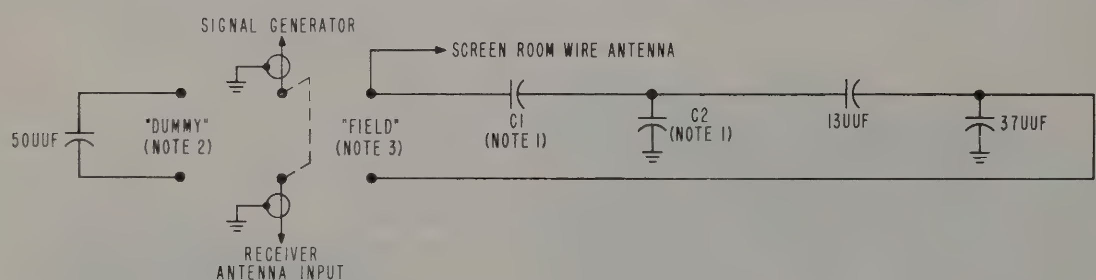
All S+N/N ratios are made to produce a 6 db or 10 db S+N/N ratio at 50 mw S+N into a 300 ohm load. The correct reference points for the 6 db ratio is 3.88 volts (50 mw) S+N and 1.94 volts (12.5 mw) N. The db ratio is 3.88 volts (50 mw) S+N and 1.2 volts (5.0 mw) N.

Audio Output.

A 300 ohm resistor is connected directly across the HI IMPEDANCE OUTPUT terminals of the test harness. Connect the Ballantine 300 voltmeter directly to the HI IMPEDANCE terminals of the test harness. Headset or similar equipment connected to the PHONE jack of the test harness is connected in parallel with the voltmeter and therefore must have a very high impedance or should be disconnected in order not to affect the output measurements.

Modulation.

The modulation required is 30% at 1,000 cps.



NOTES:

1. TO DETERMINE VALUE OF C1 AND C2 (IN $\mu\mu$F) FOR ANY ROOM FACTOR, USE THE FOLLOWING FORMULA:

$$\text{ROOM FACTOR} = \frac{C1 + C2}{C1}$$

FOR KNOWN ATTENUATION RATIOS, THE FOLLOWING CHART MAY BE USED.

ROOM FACTOR	10:1	9:1	8:1	7:1	6:1	5:1	4:1	3:1
C1 ($\mu\mu$F)	100	100	100	100	100	100	100	100
C2 ($\mu\mu$F)	900	800	700	600	500	400	300	200

2. IN "DUMMY" POSITION, THE SIGNAL GENERATOR INDICATES THE ANTENNA OPEN-CIRCUIT MICROVOLTS DIRECTLY.
3. IN "FIELD" POSITION, THE SIGNAL GENERATOR OUTPUT DIVIDED BY THE ROOM FACTOR IS EQUAL TO MICROVOLTS/METER FIELD STRENGTH.

TABLE 4-3. SYSTEM PERFORMANCE CHECKS

Step	Procedure	Normal Indication
	PRELIMINARY PROCEDURE	
1	Interconnect ADF 500 and test equipment as shown in figure 4-11. Equipment shown not connected to be used as directed in these steps.	None.
2	Note voltage of receiver and place Test Harness box voltage switch in position corresponding to receiver voltage. Apply 13.75 or 27.5 volts to test harness ± low voltage leads as required by receiver.	None.
3	Turn on receiver and test equipment and allow 30 minute warm up time.	Receiver tubes should light.
	HIGH VOLTAGE MEASUREMENTS	
1	Remove bottom cover of dynaverter and measure voltage between terminal I of J301 and chassis with Hewlett-Packard Model 410B.	Meter should indicate +135 to +150 vdc.
2	Measure voltage between terminal K of J301 and chassis.	Meter should indicate +115 to +125 vdc.
	MINIMUM NOISE LEVEL MEASUREMENT	
1	Connect Ballantine Model 300 VTVM across hi-impedance output terminals on test box.	None.
2	Set COMP-ANT switch to ANT and VOL control fully counterclockwise (minimum).	Meter reads less than 400 mv (equivalent to .005 mw).
	MCW (ANT) SENSITIVITY[1]	
1	Connect Ballantine Model 300 VTVM across hi-impedance output terminals on test box.	None.
2	Set COMP-ANT switch to ANT, band switch to 190-400 and DUMMY-FIELD switch to DUMMY.	None.
3	Tune receiver to 380 kc.	None.
4	Set measurements Model 65-B Signal Generator output to 10 μv, modulated 30% 1,000 cps.	None.
5	Tune signal generator to 380 kc adjust signal generator frequency for maximum output as indicated on the VTVM. Adjust rcvr volume control for 3.88 volts output.	None
6	Turn modulation off and read voltmeter.	Output should drop to 1.94 volts or less (10 μv sensitivity for 6 db signal).
	MCW (ANT) SENSITIVITY[1]- Continued on next page.	

TABLE 4-3. SYSTEM PERFORMANCE CHECKS (Cont)

Step	Procedure	Normal Indication
	MCW (ANT) SENSITIVITY[1] - Continued	
7	Repeat steps 4, 5 and 6 for the following bands and frequencies: KC Band / Receiver / Model 65-B 400 - 840 / 800 / 800 840 - 1750 / 1650 / 1650 190 - 400 / 300 / 300 400 - 840 / 620 / 620 840 - 1750 / 1300 / 1300 190 - 400 / 210 / 210 400 - 840 / 450 / 450 840 - 1750 / 950 / 950 [1]MCW ANT sensitivity is defined as the signal input level, modulated 30% at 10,000 cps, fed in series with a 50 $\mu\mu f$ capacitance to the 100 $\mu\mu f$ sense antenna cable, required to produce a 6 db S+N/N ratio at 50 mw S+N (modulation on, modulation off; 50 mw is equal to 3.8 volts across 300 ohms).	6 db signal + noise for 10 μv input (6 db S+N/N ratio).
	COMPASS SENSITIVITY	
1	Set receiver band switch to 190-400 and tune receiver to 210 kc.	None.
2	Set receiver COMP-ANT switch to COMP, LOOP MOTOR switch ON and DUMMY-FIELD switch to FIELD.	None.
3	Tune signal generator to receiver frequency and adjust output to 10,000 μv (10,000 μv/meter field strength), with no modulation.	Loop will seek null.
4	If indicator is equipped with VAR knob, rotate knob until zero on dial aligns with pointer.	If loop has been compensated the pointer may not align with index mark. If loop is to be replaced in same aircraft do not disturb compensation.
5	Set signal generator to 60 μv (60 μv/meter signal strength) with no modulation and tune generator for maximum tuning meter deflection.	Indicator should indicate 0°±2° with ± 2° jitter maximum.
6	Adjust signal generator to 10,000 μv. Note average reading of indicator pointer jitter.	Indicator should read 0°±1° with ± 1/2° jitter.
7	Adjust signal generator to 60 μv. Press receiver LOOP switch to rotate loop 175° clockwise from null. Release loop switch and note time required for loop to null.	Loop should null in 9 seconds or less. If loop has been compensated loop may slow down or speed up while seeking null. Loop should move smoothly away from null when LOOP switch is pressed.
	COMPASS SENSITIVITY - Continued on next page.	

TABLE 4-3. SYSTEM PERFORMANCE CHECKS (Cont)

Step	Procedure	Normal Indication
	COMPASS SENSITIVITY - Continued	
8	Perform steps 5 through 7 except set the signal generator and receiver to the following frequencies: Band — Frequency 400 - 840 — 450 kc 840 - 1750 — 950 kc 190 - 400 — 380 kc Do not change receiver tuning and switch to next band 400 - 800 — 800 kc Set receiver and signal generator to 840 - 1750 — 1650	Results should be same as indicated in steps 5 through 7.
	SELECTIVITY	
1	Connect Ballantine Model 300 VTVM across hi-impedance output terminals of test box.	None
2	Set DUMMY-FIELD switch to DUMMY. Receiver to 840-1750 band. COMP-ANT switch to ANT.	None.
3	Tune receiver to 1700 kc. Adjust model 65-B generator to 50 μv with 50% 1,000 cps modulation. Tune generator for maximum output on VTVM and adjust receiver VOL control for 3.88 volts output as indicated on VTVM.	Receiver VOL adjusted for 3.88
4	Increase signal generator output to 100μv. Move generator frequency above resonance until VTVM reads 3.88 volts. Repeat for lower side of resonance.	Difference between frequencies above and below resonance should be between 8.0 and 10.0 kc (6 db bandwidth).
5	Increase signal generator output to 50,000 μv and repeat step 4.	Difference between frequencies should be between 18.2 and 22.2 kc (60 db bandwidth).
	AVC TEST	
1	Connect a Ballantine Model 300 VTVM across the hi-impedance output terminals of the test box.	None.
2	Tune receiver to 210 kc. Place COMP-ANT switch to COMP position. Place DUMMY-FIELD switch in DUMMY position.	None.
3	Tune generator and receiver for maximum receiver output at 210 kc. Adjust signal generator for 100 μv output modulated 30% at 1,000 cps. Adjust receiver VOL control for 3.88 volts output on the VTVM.	Receiver VOL adjusted for 3.88 volts on VTVM.
4	Adjust signal generator output to 10 μv.	VTVM should read between 2.5 and 4.5 volts.

AVC TEST - Continued on next page.

TABLE 4-3. SYSTEM PERFORMANCE CHECKS (Cont)

Step	Procedure	Normal Indication
	AVC TEST - Continued	
5	Adjust signal generator output to 100 μv.	VTVM should read between 3.82 and 3.94 volts.
6	Adjust signal generator output to 100,000 μv.	VTVM should read between 4.5 and 6.5 volts.
7	Adjust signal generator output to 500,000 μv.	VTVM should read less than 8.0 volts.
8	Repeat steps 3 through 7 for 450 and 950 kc.	Same as preceeding steps except a 10 μv input voltmeter should read between 1.8 and 3.0 volts, and at 100,000 μv input voltmeter should read between 5.0 and 7.0 volts.
	AUDIO POWER OUTPUT TEST	
1	Connect Ballantine Model 300 VTVM across hi-impedance output terminals of the test box. Set for 10-15 volts output.	None.
2	Tune receiver to 950 kc. Place COMP-ANT switch to COMP. DUMMY-FIELD switch to DUMMY.	None
3	Adjust Model 65-B signal generator for 100 μv output modulated 30% at 1,000 cps. Tune signal generator for maximum output as indicated on VTVM.	None
4	Set VOL control for maximum clockwise position. Note voltage indicated on VTVM.	Voltmeter should read between 10 and 15 volts.
	LOW VOLTAGE OPERATIONAL TEST	
1	Connect a Ballantine Model 300 VTVM across the hi-impedance output terminals of the test box.	None.
2	Adjust primary voltage to 11.0 volts dc (for 14 volt units) or 22.0 volts dc (for 28 volt units).	None.
3	Tune receiver and Model 65-B signal generator for maximum receiver output and 10 μv signal output modulated 30% at 1,000 cps. Adjust receiver VOL control to produce 2.0 volts on the VTVM.	Receiver VOL control adjusted to 2.0 volts on VTVM.
4	Turn generator modulation OFF and read voltmeter.	VTVM should read 1.0 volt or less.
5	Tune receiver and signal generator to 450 kc and repeat steps 3 and 4.	VTVM should read 1.0 volt or less.
6	Tune receiver and signal generator to 950 kc and repeat steps 3 and 4.	VTVM should read 1.0 volt or less.

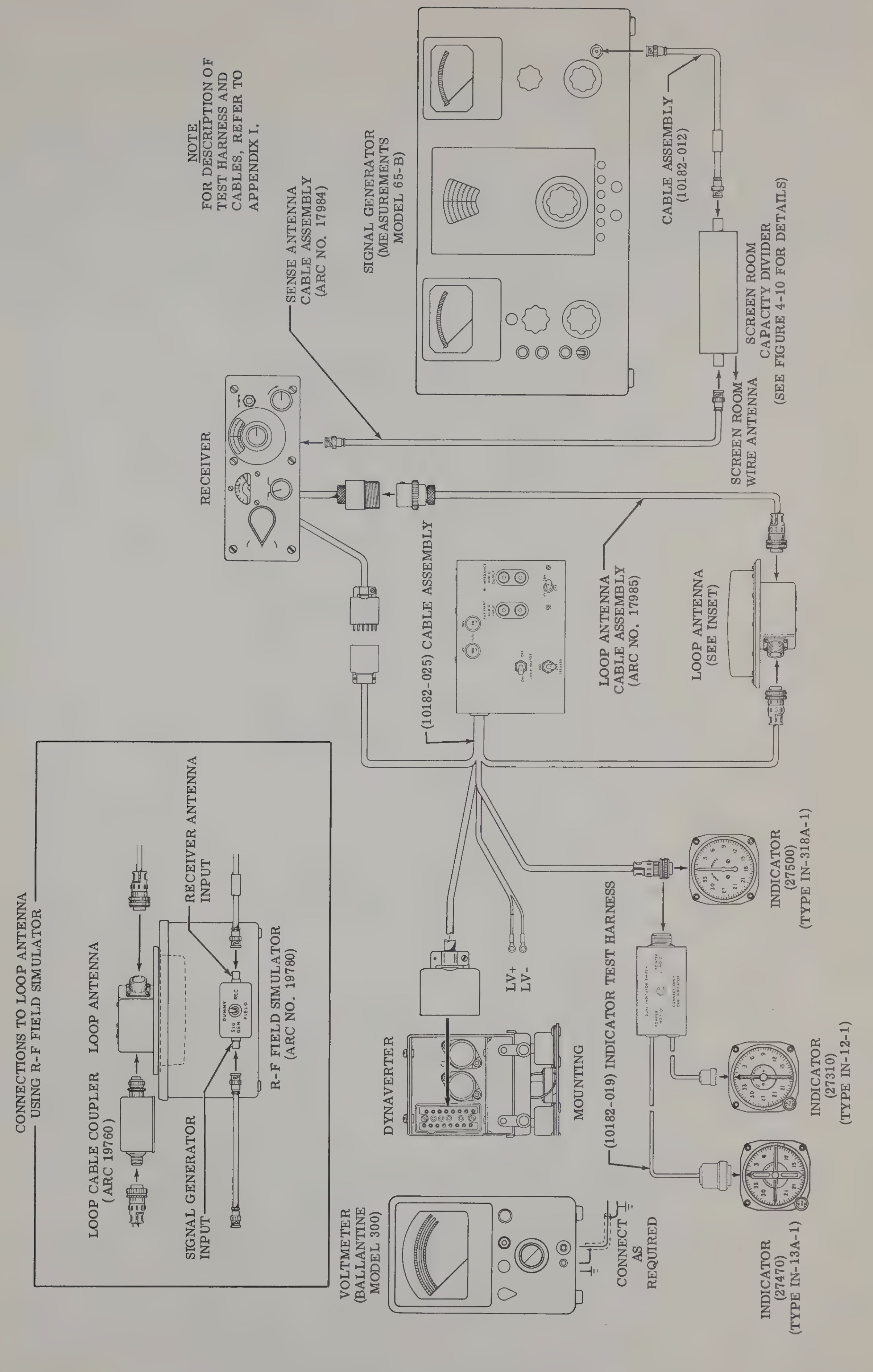


Figure 4-11. Cessna ADF 500 Bench Test Interconnection Diagram

Figure 4-12. Deleted

ALIGNMENT AND ADJUSTMENT.

Table 4-4 outlines the procedure for aligning the receiver. Though the specific alignment procedures are identified by subtitles, they should not be performed individually; each procedure presupposes that all previous steps have been completed. The test equipment required for alignment and adjustment of the receiver is listed in Table 4-2. The bench test setup is shown in Figure 4-11. The alignment points referred to in the Table are shown in Figure 4-13. The standard test conditions described are applicable.

NOTE

The receiver is aligned at the factory. Do not realign unless it is evident that such action is required. If the receiver is realigned, all the test procedures of Table 4-3 must be performed to check the accuracy of alignment.

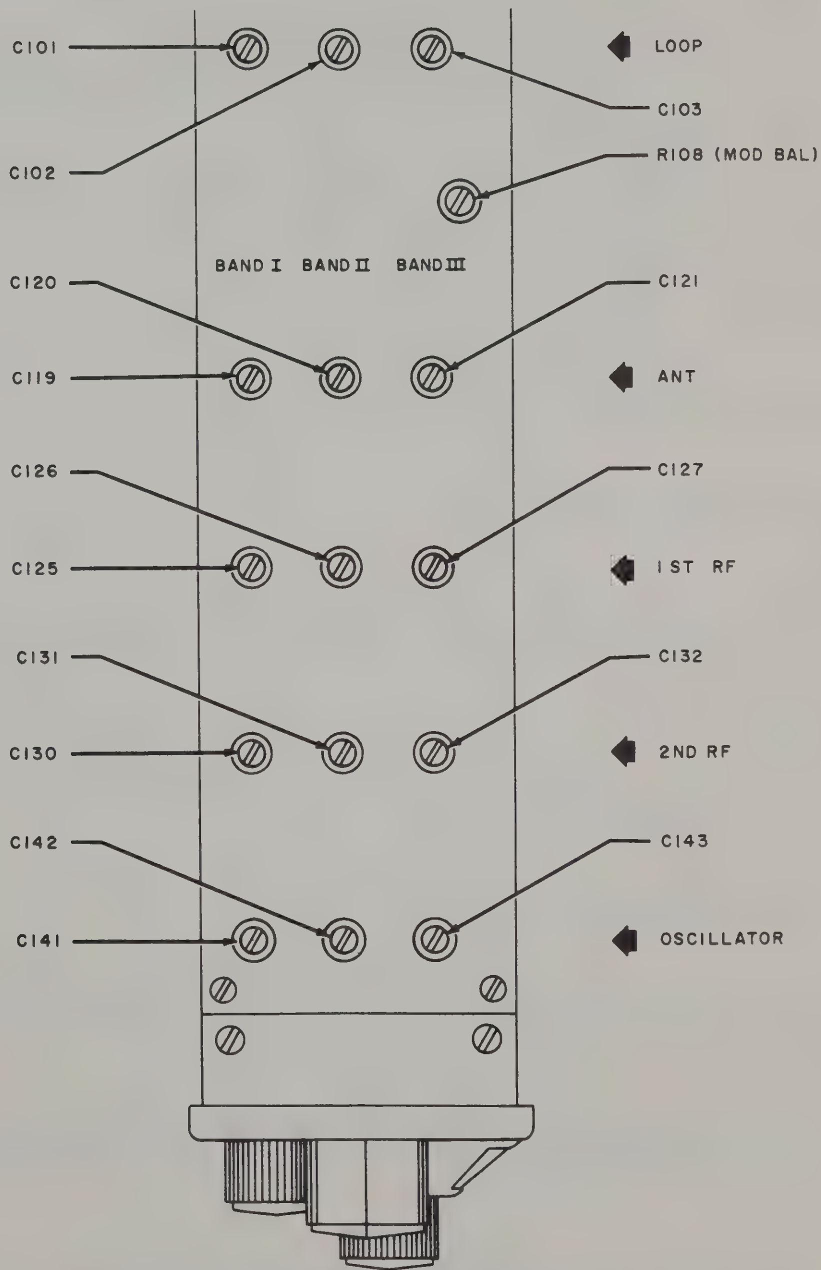


Figure 4-13. Receiver, Alignment Points

TABLE 4-4. ADJUSTMENT AND ALIGNMENT

Step	Procedure
	PRELIMINARY PROCEDURE
1	Interconnect ADF 500 and test equipment as shown in Figure 4-11. (Unconnected test equipment shown in the illustration is to be connected when so directed in this procedure.)
2	Apply power to units by turning Receiver VOL control clockwise. Adjust output of primary power supply to 13.75 or 27.5 volts dc, depending on voltage rating of equipment. Allow Receiver to warm up for at least 30 minutes.
3	Prepare Measurements Model 65-B Signal Generator for operation.
	TRIMMER CAPACITOR ALIGNMENT
4	Set signal generator output to exactly 380 kc. Use Measurements Model 111-B Crystal Calibrator to check frequency.
5	Set Receiver COMP-ANT switch to COMP, Receiver KC BAND switch to 190-400, LOOP MOTOR ON-OFF switch OFF and DUMMY-FIELD switch to FIELD.
6	Tune Receiver to 380 kc.
7	Set signal generator output to approximately 10,000 μv. Adjust in order: C141. C130. C125, and C119 for maximum deflection of the Receiver tuning meter.
8	Set signal generator output to 20 μv. Readjust in order: C141, C131, C125, and C119 for maximum deflection of tuning meter.
9	Set signal generator to exactly 800 kc. Set Receiver KC BAND switch to 400-840. Do not change tuning of Receiver.
10	Set signal generator output to approximately 10,000 μv. Adjust in order: C142, C131, C126, and C120 for maximum deflection of tuning meter.
11	Set signal generator output to 20 μv. Readjust in order: C142, C131, C126, and C120 for maximum deflection of tuning meter.
12	Set signal generator to 1650 kc. Set Receiver KC BAND switch to 840-1750. Tune Receiver to 1650 kc.
13	Set signal generator output to 10,000 μv. Adjust in order: C143, C132, C127, and C121 for maximum deflection of tuning meter.
14	Set signal generator output to 20 μv. Readjust in order: C143, C132, C127, and C121 for maximum deflection of tuning meter.
	LOOP AMPLIFIER ALIGNMENT
15	Set Receiver COMP-ANT switch to COMP and Receiver KC BAND switch to 190-400.
16	If indicator has a VAR knob, rotate until pointer is at dial 0° position.
17	Set DUMMY-FIELD switch to FIELD. Set LOOP MOTOR switch ON, press LOOP switch to rotate loop either 10° or 350° as read on the indicator. Quickly release LOOP switch and set LOOP MOTOR switch OFF. Note It is necessary to set the LOOP MOTOR switch OFF quickly to prevent the loop from returning to the 0° (null) position.
	LOOP AMPLIFIER ALIGNMENT - Continued on next page.

TABLE 4-4. ADJUSTMENT AND ALIGNMENT - Continued

Step	Procedure
	LOOP AMPLIFIER ALIGNMENT - Continued
18	Set signal generator to exactly 380 kc.
19	Set signal generator output to 10, 000 μv with no modulation.
20	Tune receiver to 380 kc.
21	Adjust Receiver VOL control to provide a 0. 5 volt reading on the Ballantine Model 300 Voltmeter.
22	Adjust trimmer C101 for maximum output on the meter. If the output exceeds 10. 0 volts, decrease the Receiver VOL control setting to prevent overloading.
23	Set signal generator to 800 kc. Set Receiver KC BAND switch to 400-840. Do not change tuning of Receiver. Adjust Receiver VOL control to provide a 0. 5 volt reading on the meter. Adjust C102 for maximum output.
24	Set signal generator to exactly 1650 kc. Set Receiver KC BAND switch to 840-1750. Tune Receiver to exactly 1650 kc. Adjust Receiver VOL control to provide a 0. 5 volt reading on the meter. Adjust C103 for maximum output.
	BALANCED MODULATOR ADJUSTMENT
25	Set Receiver KC BAND switch to 190-400. Tune Receiver to 380 kc. Make certain no signal is being received; detune slightly if necessary.
26	Set Receiver COMP-ANT switch to COMP and LOOP MOTOR switch ON.
27	With no signal generator output, adjust the Receiver MOD BAL potentiometer R108 for minimum rotational speed of loop.
28	Set Receiver KC BAND switch to 400-840 (do not change tuning of Receiver) and note speed of loop rotation. Set Receiver KC BAND switch to 840-1750 and tune Receiver to 1650 kc. Note speed of loop rotation. Make certain no signal is being received in either band position, detune slightly if necessary.
29	Reset Receiver MOD BAL potentiometer R108 for (minimum rotation) on all bands. Under no-signal conditions, loop should not rotate faster than 180° in 30 seconds on any band.

MAINTENANCE OF RECEIVER.

General.

Except for some parts and the r-f assemblies, the tubes and most other electrical parts in the receiver can be replaced without disassembly. The wiring diagrams included in this section will aid in locating and identifying the parts by their schematic reference designations. After a part has been replaced, the operation of the equipment should be rechecked. If any parts are replaced in the r-f assemblies, the receiver should be tested and realigned as described in Tables 4-3 and 4-4, respectively.

Replacement of Parts in i-f/a-f Circuits.

The parts of the i-f/a-f circuits are mounted on the right side wall and on the bottom printed-circuit board of the receiver. To expose these parts, remove the three screws fastening the bottom printed-circuit board and fold the board outward.

Replacement of Tubes.

All tubes in the receiver are subminiature types. These tubes use flexible leads which are soldered directly to a terminal point. When replacing a tube, the new tube should be oriented and its leads routed as nearly like the original as possible. Figure 4-16 is a tube location diagram. Tube wiring diagrams showing proper orientation and lead routing are shown in Figures 4-17 through 4-21. When replacing a tube, do not precut the leads before installation, keep the spacing between leads at least 1/16 inch, and use a minimum amount of solder.

Removal of r-f Assemblies.

To remove any of the r-f assemblies proceed as follows:

Step 1. Remove the receiver from its mounting rack. Set the tuning control knob counterclockwise to the stop and the KC BAND switch to 840-1750.

Step 2. Remove the ten flat head screws from the left side of the chassis and then lift the detached plate from the chassis.

Step 3. Loosen the setscrews and then remove the control knobs from the front panel.

Step 4. Detach the retaining nuts from the VOL control, COMP-ANT switch, and TEST switch. Remove the six binding head screws attaching the front panel to the receiver chassis. Carefully displace the front panel and its wiring to expose the band switch detent and shaft assembly.

Step 5. Remove the two binding head screws and spacers that hold the band selector switch shaft in position. Extract the band switch detent and shaft assembly from the chassis.

Step 6. Unsolder all green leads that interconnect the defective r-f assembly and the tuning capacitor. Unsolder all other wires interconnecting the defective r-f assembly and other assemblies at the most convenient location.

Step 7. Detach the defective r-f assembly from the r-f assemblies adjacent to it. Depending on the location of the defective r-f assembly, either two or four screws and attached hardware may have to be removed.

Step 8. Remove the two screws attaching the defective r-f assembly to the center partition plate. With the receiver in its normal position, the two screws are located on the right side of the center partition plate adjacent to the tuning capacitor. To obtain access to the screws, it may be necessary to displace the tuning capacitor. To displace the capacitor, remove the four screws attaching it to the main chassis.

Step 9. With the bottom of the receiver up, remove the two screws and attaching hardware used to hold the defective r-f assembly to the center partition plate. These screws are located beneath the cable assembly adjacent to the main printed-circuit board.

Step 10. Lift the defective r-f assembly from the receiver.

Replacement of r-f Assemblies.

To replace any of the r-f assemblies, reverse the procedure outlined previously for removal. Observe the following precautions: Carefully inspect the front and rear wafer switch contacts before replacing the band switch detent and shaft assembly in the receiver. Before engaging the long switch shaft in any switch rotor, be sure that the rotor is not oriented 180° from its proper position. All switch rotor notches in the r-f assemblies should be on the same side of the flatted shaft, with all notches viewed from the front of the receiver.

If an r-f assembly has been installed with the rotor improperly oriented, it is not necessary to remove it for realignment of the rotor. Push the shaft through the properly aligned rotors, turn the shaft by rotating the entire band switch assembly until the previously engaged rotors agree with the one that is improperly oriented, engage this rotor, and return the shaft to the original angle to engage the remaining rotors.

Voltage and Resistance Measurements.

Tube pin voltage and resistance measurements for the receiver are shown in Figure 4-22.

MAINTENANCE OF DYNAVERTER.

Introduction.

Since the dynaverter has no moving parts, periodic maintenance is not necessary. Follow the procedures outlined in Table 4-6 to isolate the cause of abnormal operation.

MAINTENANCE OF INDICATORS.

27470 Indicator.

The 27470 Indicator is a hermetically sealed unit and, except for replacement of the connector and knobs, cannot be repaired in the field unless complete overhaul equipment is available. The indicator performance may be checked by substituting a comparable reliable unit. Figure 4-38 is a schematic diagram of the 27470 Indicator. Table 4-8 lists typical resistance measurements for the indicator. The measurements were made with the indicator disconnected.

Connector Replacement.

To replace the connector on the 27470 Indicator, proceed as follows:

Step 1. Remove the three screws which secure the rear cover.

Step 2. Unsolder the wires from the connector. Unscrew the knurled nut to remove the connector.

Step 3. Install the replacement connector and resolder the wires to their proper terminals (see Figure 4-38).

Step 4. Replace the rear cover and secure it with the three screws.

27500 Indicator.

The 27500 Indicator is not hermetically sealed and can therefore be repaired in the field. The performance of the 27500 may be checked by substituting a comparable reliable unit. Table 4-8 lists typical resistance measurements for the 27500. The measurements were made with the indicator disconnected. A schematic diagram for the indicator is shown in Figure 4-39.

Connector Replacement.

To replace the connector on the 27500 Indicator, proceed as follows:

Step 1. Remove the two screws from the rear of the indicator and lift the cover off.

Step 2. Remove the four screws attaching the connector to the indicator body then displace the connector.

Step 3. Unsolder the wires from the connector, install the replacement connector, and then resolder the wires (see Figure 4-39).

Step 4. Fasten the connector and cover to the indicator body using the hardware previously removed.

TABLE 4-8.
INDICATOR RESISTANCE MEASUREMENTS

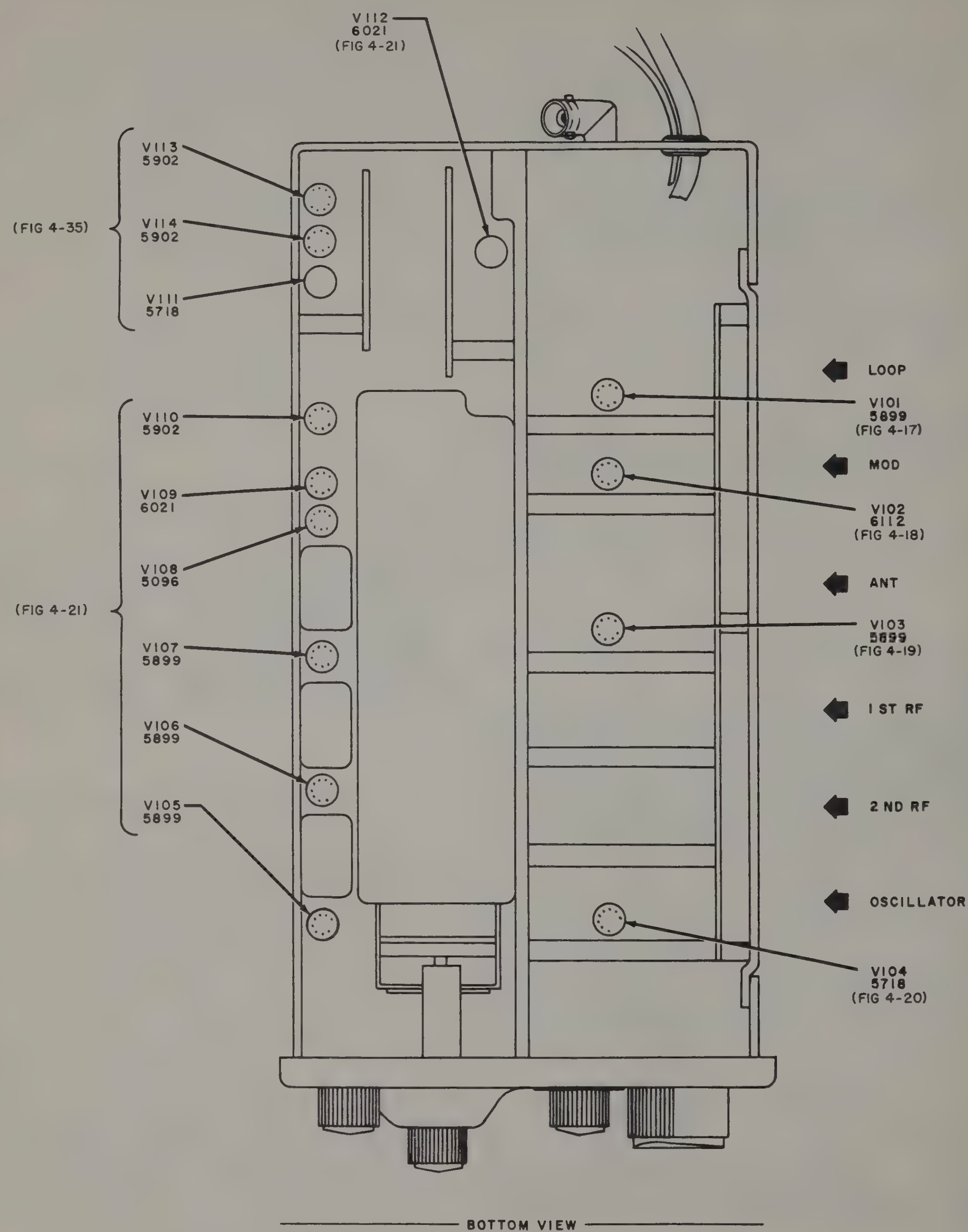
Receptacle	From Terminal	To Terminal	Resistance (ohms)
	27470 Indicator		
J601	A	B	10
	A	C	10
	B	C	10
	D	I	30
	K	E	10
	K	F	10
	E	F	10
	G	L	30
	27500 Indicator		
J501	A	B	16
	A	C	16
	B	C	16
	A	D	60

MAINTENANCE OF LOOP.

The loop is a hermetically sealed unit and should not be repaired in the field unless complete overhaul facilities are available. Loop Compensation Procedures can be found beginning on page 4-7 of this section. Figures 4-36 and 4-37 are schematic and wiring diagrams of the loop. Table 4-9 lists typical resistance measurements for the loop. Measurements were made with the loop disconnected.

TABLE 4-9.
LOOP RESISTANCE MEASUREMENTS

Receptacle	To Terminal	From Terminal	Resistance (ohms)
J401	A	B	10
	A	F	10
	B	F	10
	C	F	30
	D	F	35
	E	F	465
	A	C	0.1
	B	C	0.1
	A	B	0.2



NOTE: FIGURE NUMBERS IN PARENTHESES REFER TO INDIVIDUAL WIRING DIAGRAMS

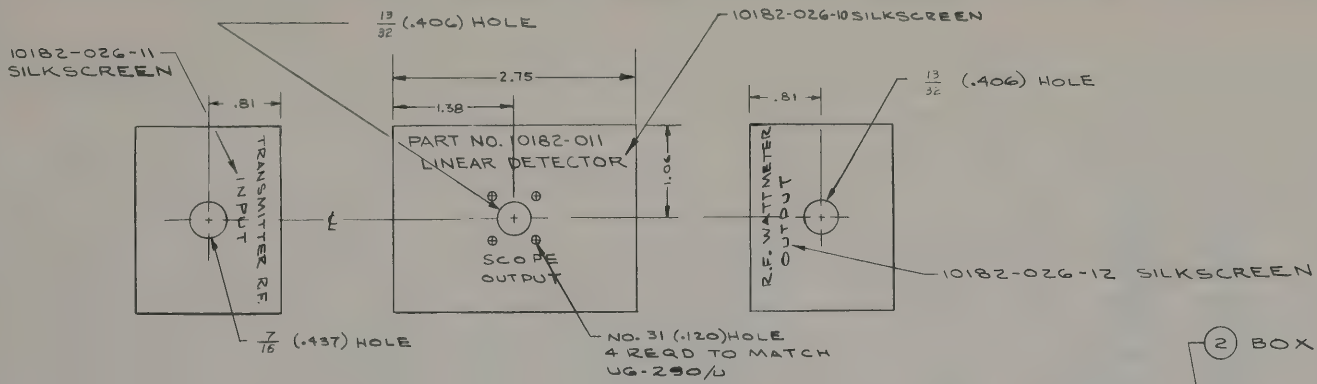
Figure 4-16. Receiver, Tube Location Diagram

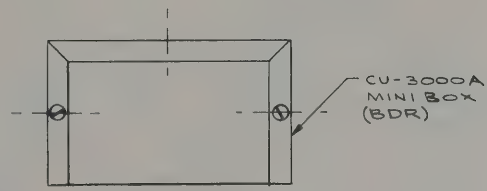
APPENDIX 1

WIRING DIAGRAMS FOR CESSNA CRAFTED ELECTRONIC TEST HARNESSES AND EQUIPMENT

Table of Contents

CHG LET	REVISION	BY / DATE	CHK / APPD





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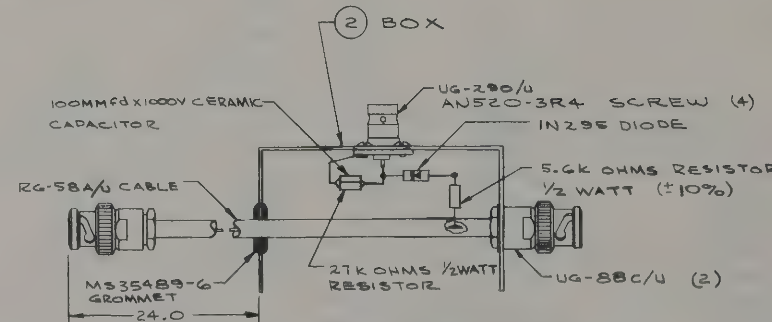
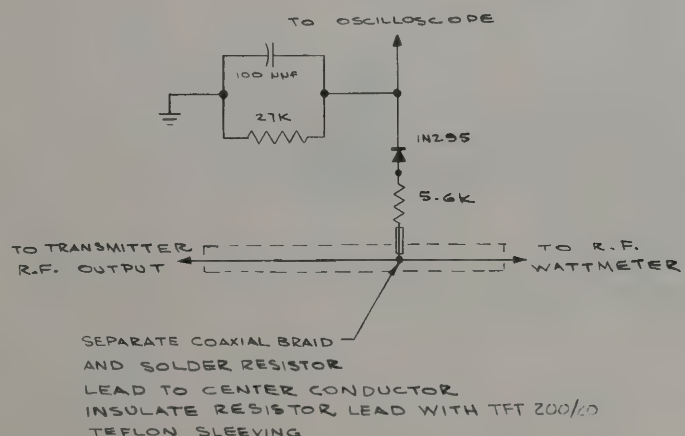


10182-011 DETECTOR ASSY



NOTES:
1. WIRE FABRICATION PER CES-1015

LIST OF MATERIALS

-2	-0	EFFECTIVE SERIALS	PAGE NO	PART NUMBER	DESCRIPTION
1				CU 3000A	MINIBOX (BDR)
	A/R			TFT 200/20	TEFLON SLEEVING (ISES)
	1			10182-026-10	SILKSCREEN
	1			10182-026-11	SILKSCREEN
	1			10182-026-12	SILKSCREEN
	4			AN520-3R4	SCREW
	1			27KΩ 1/2 W	RESISTOR
	1			IN295	DIODE (ISES)
	1			UG-290/U	JACK
	1			100MMFd X1000V	CAPACITOR (ISES)
	1			MS35489-6	GROMMET
	1			RG-58 A/U	CABLE (28" LG)
	1			5.6KΩ 1/2 W	RESISTOR (±10%)
	2			UG-88 C/U	CONNECTOR
	1			-2	BOX
				10182-011	DETECTOR ASSY

NO REQD/NEXT ASSY

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERENCES ARE

DECIMALS	ANGLES MACH	ANGLES FORMED
.00 ±.03 .000 ±.010	±0 30'	±2°

DO NOT SCALE PRINT

CES 1000 IS APPLICABLE
VENDOR CODE
PER S-1400

CESSNA AIRCRAFT CO., COMMERCIAL AIRCRAFT DIVISION, WICHITA, KANSAS

	NAME	DATE
DRAWN	HUSTON	11-22-63
GROUP	J. HUSTON	11-23-63
CHECK	McGuigan	12-18-63
STRESS		
PROJ	G.D.	11-23-63

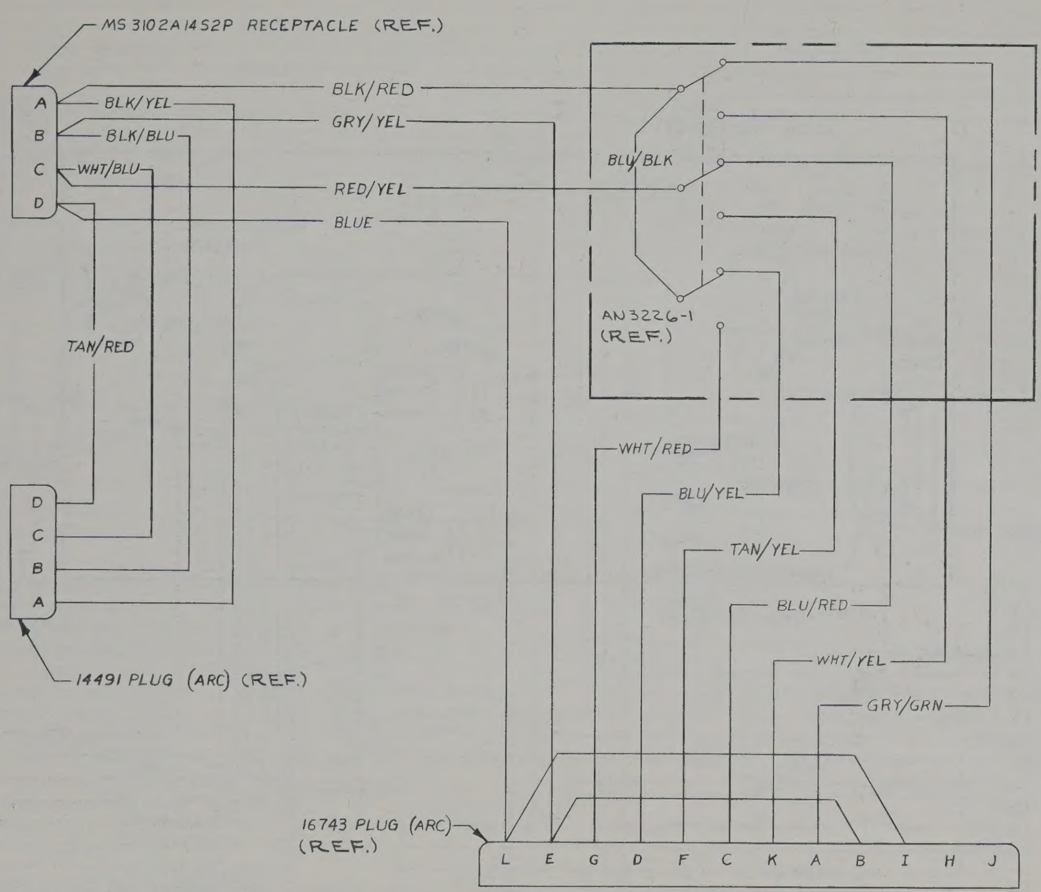
TITLE: LINEAR DETECTOR ASSY

Cessna.

DWG NO 10182-011

SUPERSEDED BY: | SUPERSEDES: | SCALE: FULL | REV: | PAGE: 1 OF 1

RADIO FORM



REVISION				
CHG LET	REVISION	BY DATE	CHK APPD	

WIRE CODE NO.	GA	MATERIAL	LG	TERMINALS			SERIALS
WHT/YEL	22	-22-9-4		SOLDER	S-1367-1-6		
WHT/RED	22	-22-9-2			S-1367-1-6		
WHT/BLU	22	-22-9-6			SOLDER		
RED/YEL	22	-22-2-4			S-1367-1-6		
TAN/YEL	22	-22-10-4			S-1367-1-6		
TAN/RED	22	-22-10-2			SOLDER		
GRY/GRN	22	-22-8-5			S-1367-1-6		
GRY/YEL	22	-22-8-4			SOLDER		
BLU/YEL	22	-22-6-4			S-1367-1-6		
BLU/RED	22	-22-6-2		SOLDER	S-1367-1-6		
BLU/BLK	22	-22-6-0		S-1367-1-6	S-1367-1-6		
BLUE	22	-22-6		SOLDER	SOLDER		
BLK/BLU	22	-22-0-6			SOLDER		
BLK/YEL	22	-22-0-4			SOLDER		
BLK/RED	22	-22-0-2		SOLDER	S-1367-1-6		

WIRE TABLE

CESSNA AIRCRAFT CO. COMMERCIAL AIRCRAFT DIVISION, WICHITA, KANSAS

	NAME	DATE
DRAWN	CHANDLER	12-14-63
GROUP	J. HUSTON	12-17-63
CHECK	McGUIGAN	12-16-63
PROJ	G. D.	12-16-63

TITLE: WIRING DIAGRAM — CESSNA ADF INDICATOR TEST HARNESS

Cessna.

DWG NO: 10182-019

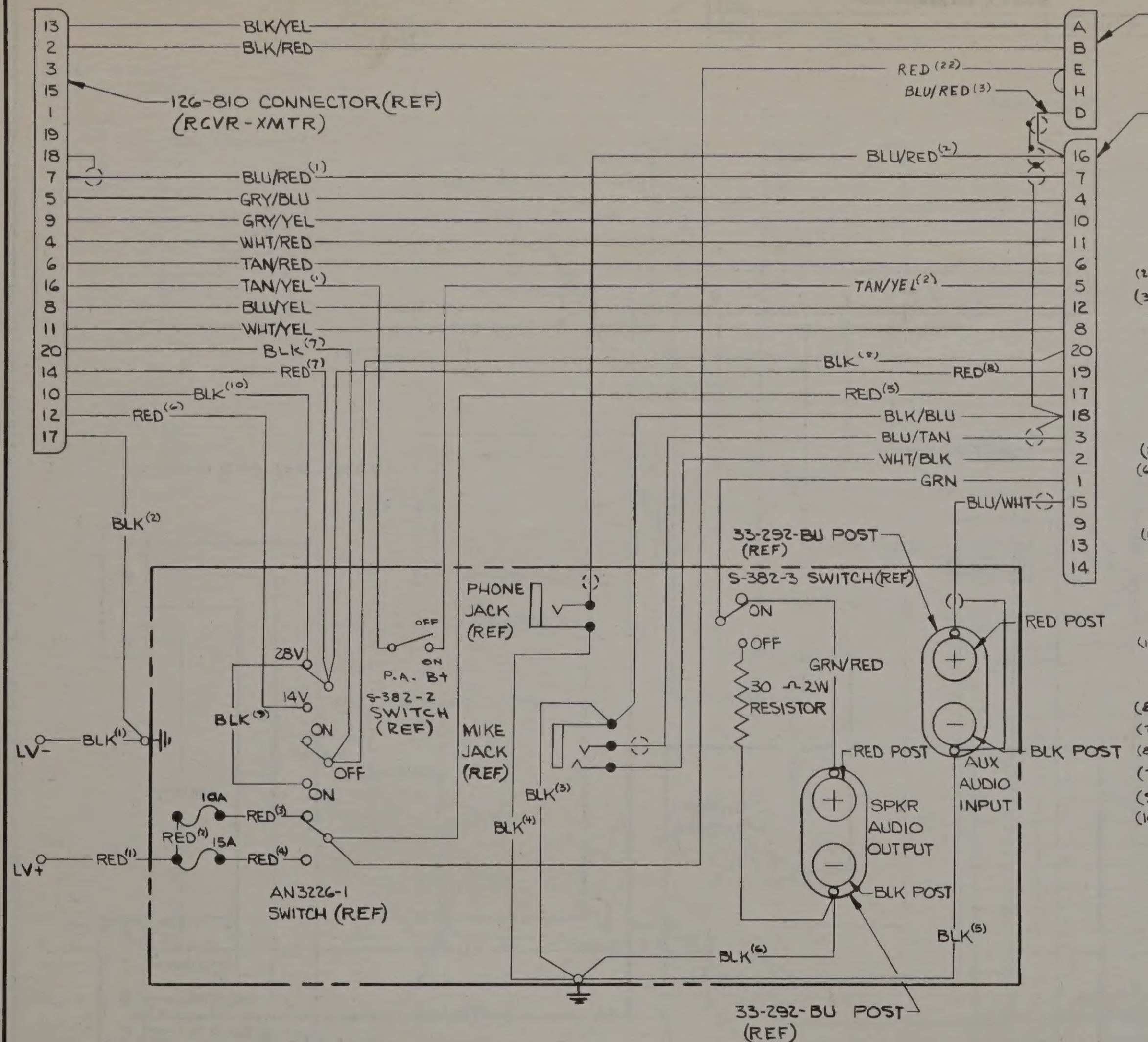
REV: B PAGE: 2 OF 2

SUPERSEDED BY: SUPERSEDES: MODEL:

ITEM NO	PART NO.	DESCRIPTION	INSTALLED ON

EQUIPMENT TABLE

FORM NO. 80-161



CHG LET	REVISION	BY DATE	CHK APPD

WIRE CODE NO.	GA	MATERIAL	LG	TERMINALS			SERIALS
(2) TAN/YEL	22	22-10-4		S-1367-1-6	SOLDER		
(3) BLU/RED	22S	S-1461-22-6-2		SOLDER	SOLDER		
BLU/TAN	22S	S-1461-22-6-10		SOLDER	SOLDER		
GRN/RED	20	-20-5-2		S-1367-1-8	S-1367-1-6		
BLU/WHT	22S	S-1461-22-6-9		S-1367-1-8 S-1367-1-8	SOLDER		
GRN	20	-20-5		SOLDER	S-1367-1-6		
WHT/BLK	22	-22-9-0			SOLDER		
BLK/BLU	22	-22-0-6			SOLDER		
(2) BLU/RED	22S	S-1461-22-6-2			SOLDER		
(6) RED	18	-18-2			S-1367-1-6		
WHT/YEL	22	-22-9-4			SOLDER		
BLU/YEL	22	-22-6-4			SOLDER		
(1) TAN/YEL	22	-22-10-4			S-1367-1-6		
TAN/RED	22	-22-10-2			SOLDER		
WHT/RED	22	-22-9-2					
GRY/YEL	22	-22-8-4					
GRY/BLU	22	-22-8-6					
(1) BLU/RED	22S	S-1461-22-6-2					
BLK/RED	22	-22-0-2					
BLK/YEL	22	-22-0-4			SOLDER		
(8) BLK	18	-18-0		SOLDER	S-1367-1-6		
(7) BLK	18	-18-0		S-1367-1-6	SOLDER		
(8) RED	18	-18-2		SOLDER	S-1367-1-6		
(7) RED	18	-18-2		SOLDER	S-1367-1-6		
(9) BLK	18	-18-0		S-1367-1-6	S-1367-1-6		
(10) BLK	18	-18-0		SOLDER	S-1367-1-6		
BLK(6)	22	-22-0		S-1367-1-8	S-1367-1-6		
BLK(5)	22	-22-0		S-1367-1-8			
BLK(4)	22	-22-0		SOLDER			
BLK(3)	22	-22-0		SOLDER	S-1367-1-6		
BLK(2)	18	-18-0		SOLDER	S-1367-1-6		
BLK(1)	16	-16-0		S-1367-2-10	S-1367-2-6		
RED(5)	18	-18-2		SOLDER	S-1367-1-6		
RED(4)	18	-18-2		S-1367-1-6	SOLDER		
RED(3)	18	-18-2		S-1367-1-6	SOLDER		
RED(2)	18	-18-2		SOLDER	SOLDER		
RED(1)	16	-16-2		SOLDER	S-1367-2-10		

WIRE TABLE

ITEM NO	PART NO.	DESCRIPTION	INSTALLED ON

EQUIPMENT TABLE

CESSNA AIRCRAFT CO. COMMERCIAL AIRCRAFT DIVISION WICHITA KANSAS

	NAME	DATE
DRAWN	McGUIGAN	12-14-63
GROUP	J. HUSTON	12-14-63
CHECK	J. DRESSER	12-14-63
PROJ	G. D.	12-16-63

TITLE: WIRING DIAGRAM — CESSNA TRANSCEIVER 500 TEST HARNESS

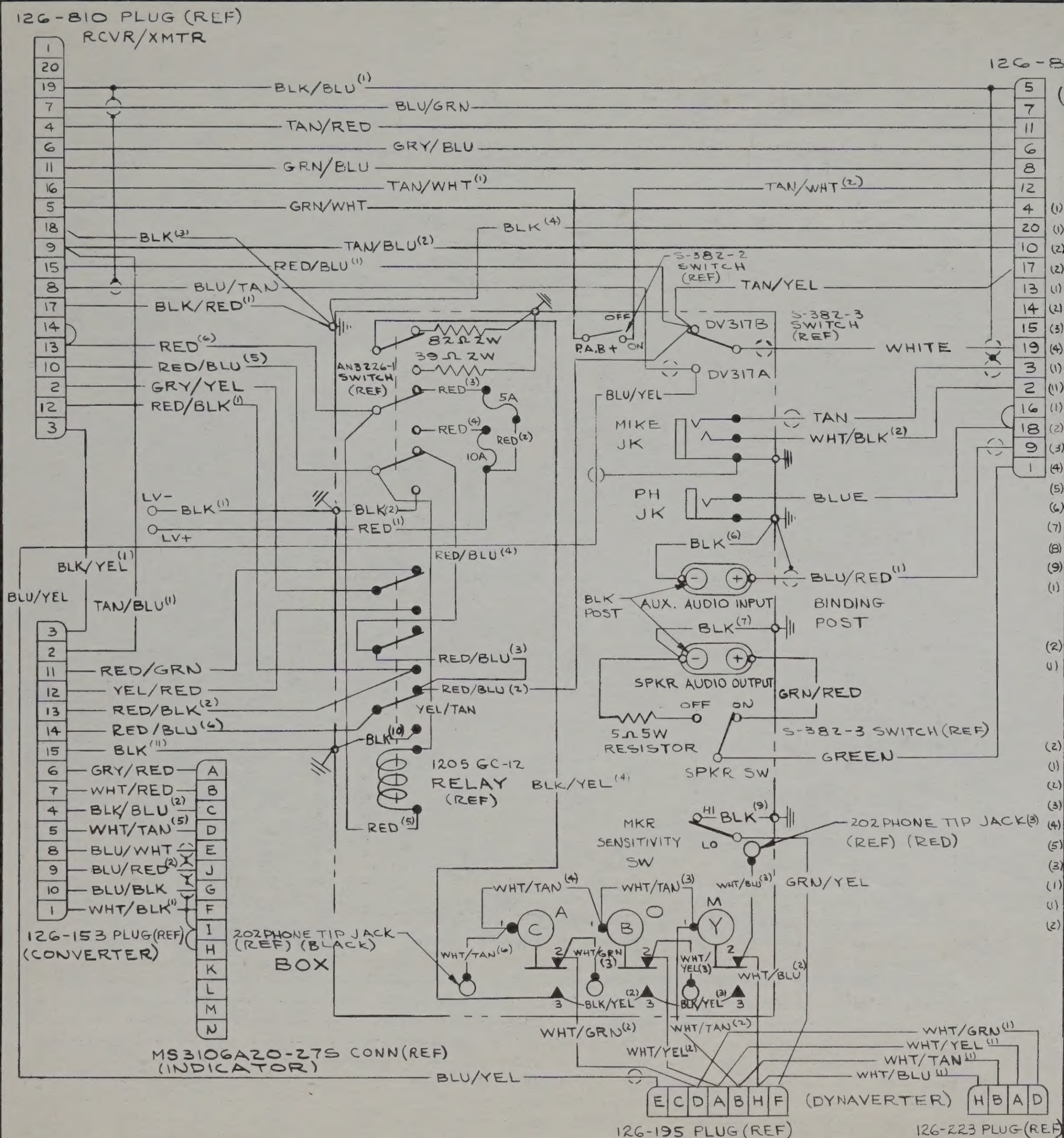
Cessna.

DWG NO: 10182-020

SUPERSEDED BY: SUPERSEDES: MODEL:

REV: A PAGE: 2 OF 2

FORM NO. 80-161



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	WIRE CODE NO.	GA	MATERIAL	LG	TERMINALS			SERIALS
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(1)	TAN/BLU	22	22-10-6					
(2)	TAN/BLU	22	22-10-6					
(2)	BLK/YEL	22	22-0-4	2.5				
(1)	RED/BLU	18	18-2-6		SOLDER			
(2)	RED/BLU	18	18-2-6		S-1367-1-6			
(3)	RED/BLU	18	18-2-6	1.5	SOLDER			
(4)	RED/BLU	18	18-2-6	6.0	S-1367-1-6	SOLDER		
(1)	BLK/RED	22	22-0-2		SOLDER	S-1367-1-6		
(11)	BLK	18	18-0		SOLDER	S-1367-1-6		
(1)	BLK	16	16-0		S-1367-2-10	S-1367-2-6		
(2)	BLK	18	18-0	6.0	S-1367-1-6	S-1367-1-6		
(3)	BLK	18	18-0		SOLDER	S-1367-1-6		
(4)	BLK	18	18-0		SOLDER	S-1367-1-6		
(5)	BLK	22	22-0	6.0	S-1367-1-6	SOLDER	OBSOLETE (NEVER USED)	
(6)	BLK			6.0	S-1367-1-8	S-1367-1-6		
(7)	BLK			6.0	S-1367-1-8	S-1367-1-6		
(8)	BLK			6.0	SOLDER	SOLDER	OBSOLETE (NEVER USED)	
(9)	BLK	22	22-0	6.0	S-1367-1-6	S-1367-1-6		
(1)	BLK/BLU	22	22-0-6		SOLDER	SOLDER		
	BLU/YEL	22S	S-1461-22-6-4		S-1367-1-6			
	BLU/WHT	22S	S-1461-22-6-9		SOLDER			
(2)	BLU/RED	22S	S-1461-22-6-2		SOLDER			
(1)	BLU/RED	22S	S-1461-22-6-2		S-1367-1-8 S-1367-1-8			
	BLU/BLK	22S	S-1461-22-6-0		SOLDER			
	GRY/BLU	22	22-8-6					
	WHT/RED	22	22-9-2					
(2)	WHT/BLK	22	22-9-0					
(1)	WHT/TAN	22	22-9-10					
(2)								
(3)				2.5				
(4)				2.5				
(5)	WHT/TAN	22	22-9-10					
(3)	BLK/YEL	22	22-0-4	2.5				
(1)	WHT/BLK	22	22-9-0					
(1)	RED/BLK	18	18-2-0					
(2)	RED/BLK	18	18-2-0					
	BLU/GRN	22S	S-1461-22-6-5					
	GRN/BLU	20	20-5-6					
	TAN/RED	22	22-10-2		SOLDER	SOLDER		

1 WIRE TABLE

ITEM NO	PART NO.	DESCRIPTION	INSTALLED ON

EQUIPMENT TABLE

CHG LET	REVISION	BY DATE	CHK APPD

CESSNA AIRCRAFT CO., COMMERCIAL AIRCRAFT DIVISION, WICHITA, KANSAS

	NAME	DATE
DRAWN	DENEAU	12-14-63
GROUP	J. RUSTON	12-17-63
CHECK	R. Stick	12-17-63
PROJ	G.D.	12-16-63

TITLE: WIRING DIAGRAM — CESSNA NAV/COM 500 TEST HARNESS

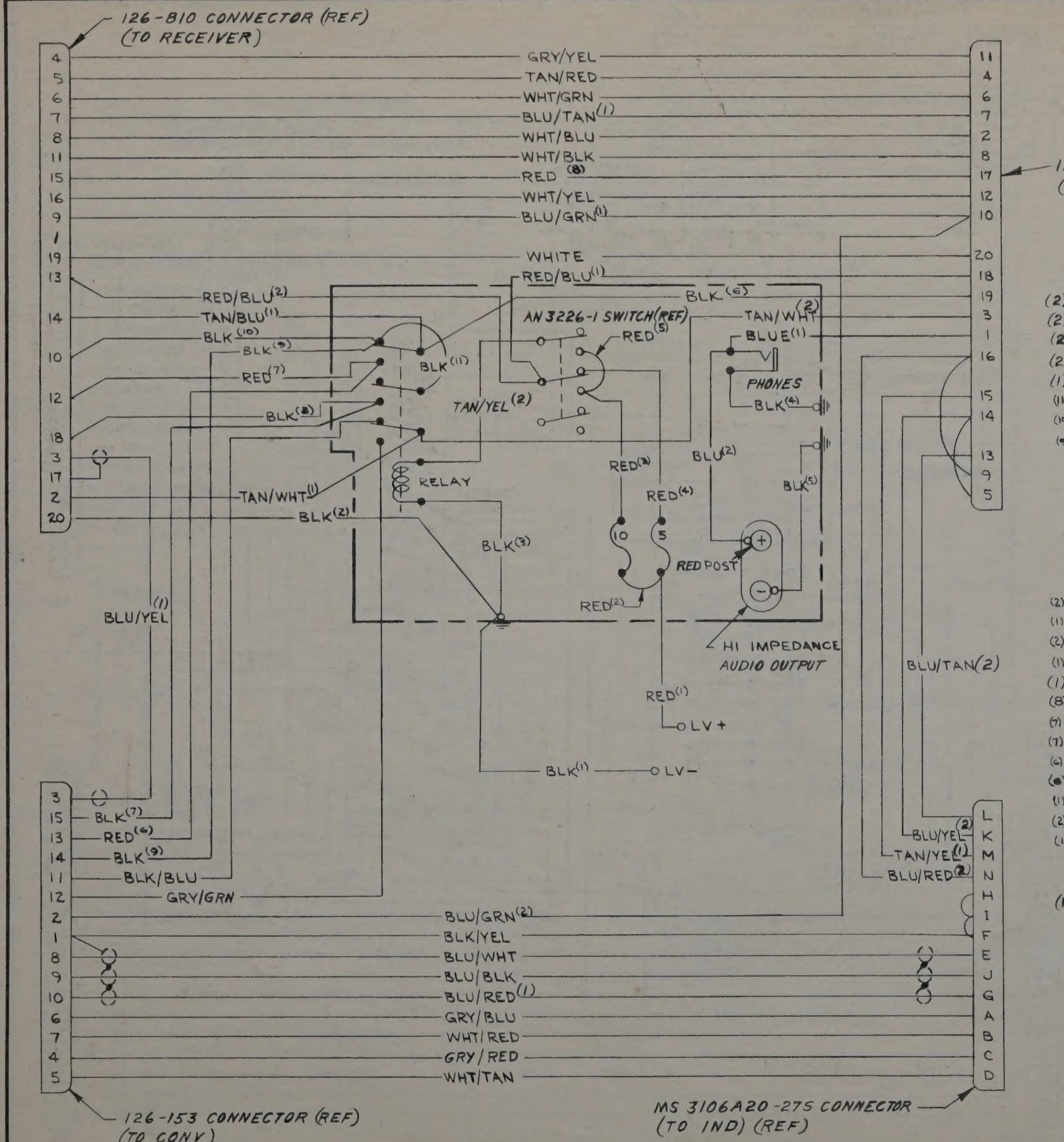
Cessna.

DWG NO: 10182-022

SUPERSEDED BY: SUPERSEDES: MODEL:

REV: A PAGE: 2 OF 3

FORM NO. 80-161



WIRE CODE NO.	GA	MATERIAL	LG	TERMINALS			SERIALS
(2) BLU/RED	22	22-6-2		SOLDER	SOLDER		
(2) BLU/YEL	22	22-6-4		SOLDER			
(2) BLU/TAN	22	22-6-10		SOLDER			
(2) TAN/YEL	22	22-10-4	6	S-1367-1-6			
(1) TAN/YEL	22	22-10-4		SOLDER			
(11) BLK	18	18-0					
(10) BLK	18	18-0					
(9) BLK	18	18-0					
WHT/TAN	22	22-9-10					
GRY/RED		22-8-2					
WHT/RED		22-9-2					
GRY/BLU		22-8-6					
BLK/YEL		22-0-4					
WHT/YEL		22-9-4					
GRY/YEL		22-8-4		SOLDER			
(2) BLU		22-6	8	S-1367-1-8			
(1) BLU		22-6		SOLDER			
(2) TAN/WHT		22-10-9					
(1) TAN/WHT	22	22-10-9					
(1) BLU/YEL	22	S1461-22-6-4					
(8) BLK	18	18-0					
(7) BLK	18	18-0					
(7) RED	18	18-2					
(6) RED	18	18-2					
(6) BLK	18	18-0					
(1) TAN/BLU	22	22-10-6					
(2) BLU/GRN		22-6-5					
(1) BLU/GRN		22-6-5					
WHT/BLK		22-9-0					
WHT/BLU		22-9-6					
(1) BLU/TAN		22-6-10					
WHT/GRN		22-9-5					
TAN/RED		22-10-2					
GRY/GRN		22-8-5					
BLK/BLU	22	22-0-6		SOLDER	SOLDER		

WIRE TABLE

ITEM NO.	PART NO.	DESCRIPTION	INSTALLED ON

EQUIPMENT TABLE

CHG LET	REVISION	BY DATE	CHK APPD

CESSNA AIRCRAFT CO COMMERCIAL AIRCRAFT DIVISION WICHITA KANSAS

	NAME	DATE
DRAWN	R.E. MOORE	12-16-63
GROUP	J. HUSTON	12-17-63
CHECK	J. DRESSER	12-17-63
PROJ	G D	12-17-63

TITLE: WIRING DIAGRAM — CESSNA NAV/OMNI 500 TEST HARNESS

Cessna.

DWG NO. 10182-023

SUPERSEDED BY: | SUPERSEDES: | MODEL: | REV: A | PAGE: 2 OF 3

FORM NO. 80-161